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# Biological Resources

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ERME II  
Volume 3

Tulare County, California





# BIOLOGICAL RESOURCES

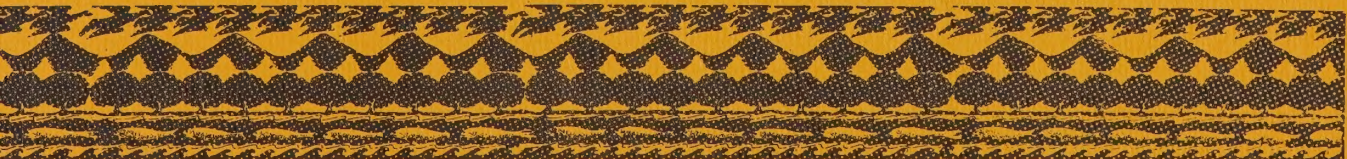
**ERME II**  

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**VOLUME 3**

*County planning Tulare co*  
*Conservation*

**An Element of the Tulare County General Plan**



**Prepared by Tulare County Planning Department  
and Grunwald, Crawford and Associates  
Hanford, California**







# County of Tulare



## PLANNING DEPARTMENT

Telephone (209) 732-5511 - Ext. 341

Room 107, Courthouse

VISALIA, CALIFORNIA 93277

April, 1974

The Honorable Board of Supervisors  
Tulare County  
Visalia, California 93277

Gentlemen:

This Biological Resources Element of the General Plan of Tulare County is an extension of the Environmental Resources Management Element initiated last year and substantiates the ERME prepared in 1972 for compliance with State mandated elements of the general plan series. This element provides more specific information, systems, and bases for policy decision by your Board relating to living things in Tulare County. The types, location and certain significances of both plant and animal resources are included here.

During the preparation of this element of the General Plan, much contact with the State and Federal agencies was developed. This was done through Senate Resolution 202 of 1971 which set forth a procedure for cooperation between State, Federal and local agencies in the development of local studies and policies. This was done so that local government could better manage its own affairs in terms of a planning program locally derived with State and Federal cooperation.

Specific thanks is due Mr. Elmer Aldrich, Manager, Statewide Planning Branch of California Department of Parks and Recreation, now consultant to Grunwald-Crawford Associates of Hanford. Mr. Peterson was the principal writer of this Element together with Robert Grunwald. The cooperation of the consultants with the Tulare County Planning Department and the Advisory Groups has been excellent and has led to the preparation of this final stage of the plan element.

We think this Biological Resources Element will be helpful to you in your decision making processes as biological things relate to the economic, cultural and social factors that you must continually integrate in your work.

We sincerely hope that you will find this work to be useful and interesting in your future program of leadership in Tulare County.

Sincerely,


TULARE COUNTY PLANNING DEPARTMENT

A handwritten signature in dark ink, reading "R. L. Wall".

Robert L. Wall, Planning Director

RLW:jm





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(Principal Writer: Elmer Aldrich)

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## ABSTRACT

This report was prepared as a component of the Environmental Resources Management Element (ERME) of the Tulare County General Plan. The ERME, first published in June, 1972, provided a comprehensive proposal for achieving the interrelated management of the natural resources of Tulare County, and fulfilled the requirements of State Law for the preparation and adoption of Conservation and Open Space Elements of the County's General Plan.

This report expands upon the subject of biological resources contained in the ERME, and constitutes a Biological Resources Element (BRE). This Element provides more specific direction than the ERME for identifying the type and location of biological (plant and animal) resources of special significance to the County, the State, and the Nation, so that these resources may be protected in the public interest by private and public agencies.

The methodology followed in preparation of the Biological Resources Element is unique, with respect to technical procedure. It is also unique in the exemplary assistance provided by personnel of State and Federal resource management agencies. And, it is unique as an effective approach in achieving the level of intergovernmental coordination which is necessary if county governments in California are to play the truly important role assigned by the State Legislature for protecting the biological resources of the State.

The work is a joint product of the Tulare County Planning Department and Grunwald-Crawford & Associates with Elmer Aldrich, former Director of the Department of Parks and Recreation of the State of California.







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# Chapter I

## INTRODUCTION





## CHAPTER I

### INTRODUCTION

#### Relationship to the Environmental Resources Management Element

This Biological Resources Element (BRE) is both an outgrowth and a component of a much more comprehensive document: The Environmental Resources Management Element (ERME) of the Tulare County General Plan.

The ERME, published in June, 1972, provides a comprehensive view of the interrelated policies and programs required to manage appropriately the natural resources of Tulare County. Six key functional areas of natural resources management were identified and described in the ERME which need to be given high priority because of the irreversible loss or degradation of natural resources posed by the manner in which these resources are being used. These issues concern:

1. The protection of water resources;
2. The protection of land resources;
3. The protection of recreation resources;
4. The protection of biological resources;
5. The protection of air resources; and
6. The production of energy.

Following publication of the ERME, it became evident that the protection of biological resources ranked high as the cause of many problems affecting land use decisions within the County. Consequently, the BRE was included as one of the several additional studies undertaken in Fiscal Year 1972-1973 which were deemed necessary to expand upon the initial ERME.

## Background and Approach

In order to provide a plan that would be most readily and directly applicable to the County's planning and development process, it was especially important to approach the subject from the position of the users of biological resources. The various uses of biological resources were considered to be legitimately varied from "let it alone in its natural state" to "extract it and consume it".

In the United States today, and indeed throughout the world, it is the lack of understanding and polarization of feeling about these two seemingly opposite ethics that causes controversy in attempts to rescue our natural environment from irreversible loss or degradation. In California, part of the problem stems from confusion over responsibility for both the planning and management of natural resources. This situation is discussed at length in the ERME, including limitations which affect the responsibilities of all levels of government as embodied in statutes and as reflected in the plans and programs affecting various aspects of resource management. Of particular significance are limitations which confuse and indeed thwart the achievement of a truly inter-governmental approach, since it will only be through intergovernmental action that effective management of the natural resources of California can occur.

In developing the ERME, Tulare County recognized the importance of intergovernmental action. The Legislature did also by passage of Senate Resolution 202. This resolution requested the Resources Agency and its many constituent units to cooperate with Tulare County in an experiment which would provide mutually reinforcing assistance to both levels of government in carrying out their respective responsibilities for resource planning and management. State agencies responded with enthusiasm, and provided "over-the-shoulder" consulting assistance to the County in developing guidelines for environmental resources planning at the local level as the first order of business. These same agencies, together with agencies of the federal government, organized a task force for this effort. Subsequently, individual agencies on the task force provided more specific data and assistance concerning their areas of interest and responsibility.

After publication of the ERME, these same agencies critiqued the ERME document and provided some of the additional insight required by the County to start preparation of the BRE. Of special importance was the insight gained as to those biological resources in the County, both plant and animal, which are of "larger-than-local" significance; i.e., resources which are of regional, state and even national significance and which, therefore, should be given high priority in the BRE.

Often in the preparation and implementation of their General Plans, cities and counties have been criticized by state and federal agencies, by the general public and special interest groups, for catering to local interests and disregarding the interests of people in other counties, the state and even the nation. Such criticism has become especially strong with respect to the protection and management of biological resources. On an increasing scale, such criticism is manifest through the review of environmental impact reports (EIR's), and on an increasing scale, "larger-than-local" interests are having an impact on local land use decisions.

Recent amendments to state law have given local governments more responsibility to plan for the wise use of resources, but without a corresponding commitment being required of the state and federal governments. If this de facto responsibility of county government to protect resources of regional, state and national interest continues, then great strides are called for NOW in identifying more specifically what those interests are! The counties cannot make such final determinations by themselves.

VOIDS in the capacity of the state and federal government to provide essential assistance to any county in California were identified during preparation of the ERME. Since then, however, progress has been made through cooperative efforts of the State Office of Planning and Research (OPR), the Council on Intergovernmental Relations and the Resources Agency. OPR, which is charged with responsibility for developing and maintaining the State Environmental Goals and Policy Report, has mapped and identified, at least generally, those land and water resources which are considered to be of statewide significance. In process, but too late to be of assistance in preparing the Biological Resources Plan for Tulare County, is a detailed study of two of the nine landscape provinces of California. One of these studies covers the Great Valley Province, which includes all of the land on the Valley floor within Tulare County. (See Figure II-2)

The simplified approach represented by this document was taken not only because of budget and time limitations, but also in recognition of the necessity for treating those biological resources which are most threatened and which are of the greatest significance from the standpoint of "larger-than-local" interests. Tulare County feels that this approach is valid both because it provides a base of policy which complements other components of the County's comprehensive planning program, and because it has resulted in an operational capability for dealing effectively with many agencies of the state and federal governments. It should be noted that many of the state and federal agencies who cooperated with the County in preparing the Biological Resources Element have expressed the view that every county in the state should have conducted a similar effort at the same time.



## Methodology and Scope of Work

In producing the Biological Resources Element, a method and scope was devised to provide directly the best tools for the County to deal with biological resources as they may conflict with other resources.

Toward this objective, therefore, plant and animals, which comprise the field of biology, were grouped and treated according to the various uses of these resources and the problems they cause. Generally, the uses were placed into two groups: Nonextractive Uses and Extractive Uses.

Programs and problems involved in nonextractive uses include protection of rare and endangered species of plants and animals and provision of areas for sightseeing, of scenery, casual and scientific study and for educational uses of schools (elementary through college).

Extractive uses involve biological resources for hunting and fishing, production of timber, and agriculture and grazing.

In meeting the needs for biological resources, recommendations were made on the responsibilities of the County and other levels of government. Major emphasis is given to deficiencies in identifying the state and national interests in biological resources.

## Acknowledgements

The staff of the Tulare County Planning Department and their consultants are grateful for the contributions of many agencies and individuals to the preparation of both the parent ERME report published in 1972, as well as to this BRE. Some of the materials used in preparing the ERME were found to be useful again for the BRE, while other materials were found to have application for the first time; and, much of the materials used for the BRE are new and original in concept.

Contributions from within Tulare County centered on the efforts of the Environmental Quality Committee of the Tulare County Association of Governments, and on a special committee organized by the consultants. Meetings were held with the Environmental Quality Committee to review the scope of work and progress toward BRE completion. The membership of this Committee is as follows:

James Sorensen, Civil Engineer

Wayne Robertson, Executive Director  
Tulare County Chamber of Commerce

Dr. Lowell F. Chamberlen,  
Tulare County Health Department

Raymond Banks, State Forest Ranger  
State Division of Forestry

Dr. E. P. Brauner

David A. Green, Earth Home

Bill Bruner  
U. S. Soil Conservation Service

Phil Corsin,  
U. S. Forest Service

Dean Lloyd, Deputy Forest Supervisor,  
U. S. Forest Service

Henry G. Schmidt, Superintendent  
Sequoia and Kings Canyon National Park

Patricia Riley, President  
League of Women Voters of California

Mrs. Dennis Welch, President  
Sequoia Branch, American Ass'n. of Univ. Women

Charles Smith, Chairman,  
Dinuba Planning Commission

Exeter Planning Commission Chairman

Farmersville Planning Commission Chairman

Lindsay Planning Commission Chairman

Gary Irish, Planning Director  
City of Porterville

William Newkirk, Planning Director  
City of Tulare

Culley Polehn, Planning Director  
City of Visalia

Woodlake Planning Commission Chairman

Hal Campbell, President  
Tulare County Farm Bureau

John Boudreau, Chairman  
Nuclear Power Plant Committee

Darrell Hill, Planning Director  
City of Lindsay

Mary Louise Vivier

Fred Marten  
College of the Sequoias

Curtis D. Lynn, Farm Advisor  
Agricultural Extension Service

A Biological Study Areas Committee was organized by the consultant to identify those areas of the County where biological resources were of significance for their scientific and educational value to local elementary, secondary and community college programs. Members of this Committee are as follows:

Charles K. Rich - Director, Science and Conservation, Tulare County Department of Education; Director, SCICON (Clemmie Gill School of Science and Conservation)

Noel Fitzgerald - Assistant to the Director,  
SCICON

Sabin Gray - Director of Educational Resources,  
Tulare County Department of Education

Bill Clark - Deputy Agricultural Commissioner,  
Tulare County

John Kline - Science Supervisor, Visalia  
Unified School District

Norman McCarter - Visalia Unified School  
District, elementary level

Gary Nishimini - Monson-Sultana Elementary  
School

Darlene Cotton - Porterville Elementary Schools

John Kimber - Woodlake Junior High

Mike McQuary - Cutler-Orosi Unified School  
District

Bill Murphy - Orosi High School

Gene Smith - Redwood High School Visalia

Ollie Michaels - Woodlake High School

Dwayne Lurtz - Exeter High School

Shirley Zuckswert - Strathmore High School

Don Zuckswert - Porterville Community College

Sam Pusateri - College of the Sequoias

Bill Louhe - Tulare City Schools, Director of  
Curriculum

More than 70 individuals, representing state and federal agencies, institutions of higher learning, conservation organizations, other groups and the public generally have given valuable time to the BRE effort. Without their contribution of guidance, procedures, specialized knowledge and interest, the BRE could not have been completed in the short time available. These individuals, and the organizations represented are listed below:

National Park Service, Sequoia-Kings Canyon

Richard Burns  
George Briggs  
James Hartzell

Bureau of Land Management

David Little  
Richard Metzker

Bureau of Reclamation

Vaughn Bishop  
Bruce Kimsey

Bureau of Sports Fisheries & Wildlife

Jack Downs  
Leon Littlefield  
Clinton Lostetter  
Edward Smith  
Bruce Wiseman

Bureau of Outdoor Recreation

Stan Euston  
Frank Sylvester

Bureau of Indian Affairs

Bill Brady  
Frank Haggerty  
Ed Windsor

Forest Service, Sequoia National Forest

Dean Lloyd

Soil Conservation Service

Bill Bruner  
Art Pierson

US Corps of Engineers

Fred Kendall  
Felix Smith

Governors Office, State Office of Planning and Research

John Passerello  
James Warren

State Department of Fish & Game

John Brode	Roy Hines
Jack Bier	Eldredge Hunt
Alex Calhoun	Howard Leach
Larry Dunn	James McCormick
Leonard Fisk	Robert Mallette
George Franklin	David Selleck
Phil Hansen	Randolph Smith
Spike Naylor	John Smith

State Department of Parks & Recreation

Lee Warren

State Department of Conservation, Division of Forestry

Lee Burcham  
Fred Frank  
Dean Slobalm

State Department of Water Resources

Al Stumpf  
James Wordlow

State Department of Public Health, Bureau of Vector Control

Keith Murray



State Department of Education

Rudy Schaeffer

State Division of Highways

Robert Binger  
Ron Leonard  
George Toyama

State Department of Justice

Alexander Henson  
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State Board of Equalization

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Kristine Tollistruth

University of California Herbarium

Alice Howard  
Dr. Herbert Mason

University of California, Davis

David Gaines

California State University, Fresno

Dr. John Weiler

Bakersfield Community College

Dr. George Laurence

California State College, Bakersfield

Dr. Ted Murphy

American River Community College

George Dobbins

Tulare County, Office of Superintendent of  
Schools

Charles Rich

Tulare County, Office of Agricultural Com-  
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Bill Clark

Tulare County Chamber of Commerce

Wayne Robertson

California State Chamber of Commerce

Arthur Jordan

Tribal Council, Tule River Indian Reservation

Alex Garfield

California Native Plant Society

Robert Powell

Natural Areas Coordinating Council

Lester Hood

Nature Conservancy

Jack Zaninovich  
Henry P. Little

Private Citizens

Bill Richardson, Mammalogist and Citrus  
Grower

Finally, many published papers, books and reports in the fields of biological resources were consulted and utilized. Many of these publications are listed in the Bibliography.

Use of the BRE

It is intended that the BRE be used for the following purposes:

1. To identify the need for further public acquisition or other reservation of areas for the protection of biological values and ecological units of the landscape.
2. As the basis for enacting appropriate changes in the zoning ordinances to assure the dedication or reservation of land for the permanent protection of biological values, or for the immediate but interim protection of values until more permanent means of protection are instituted.
3. As a check list for items to be considered in the preparation and evaluation of environmental impact statements and reports on public and private projects.
4. As the basis for County action requesting state and federal agencies to identify more specifically their long-range interests in the biological resources of the County.
5. As a basis for determining priorities for the more detailed planning and acquisition of fee or lesser than fee interests in natural areas and for determining priorities in protective programs and enforcement procedures.
6. To stimulate the formulation of a concerted countywide program of public education and information to protect plants, animals and scenic areas, including educational programs by the schools and media concerning laws and programs designed to protect such values.

- 6
7. As the framework for continuing the work of the Biological Study Areas Committee in recommending study areas that should be acquired or otherwise reserved and protected because of their critical importance to programs of conservation education and research for all levels of education within the County.
  8. To provide a more objective and analytical approach for the resolution of conflicts among special interest groups which have competing interests in the use of lands having significant biological resources.
  9. To indicate which biological values in the County require protection on a local and intergovernmental basis.

*Source: David Moore, Tulare County Planning Department*



*The Pixley Wildlife Refuge provides for protection for rare and endangered animals and rare plant life as well as providing controlled study areas for naturally related species. Thus the wildlife refuge provides the preservation of biological resources for scientific and educational purposes.*



# Chapter II

## BIOLOGICAL RESOURCES : WHAT ARE THEY?





## CHAPTER II

### BIOLOGICAL RESOURCES: WHAT ARE THEY?

#### Classification

The most applicable Websterian definition of biology is simply, "The plant and animal life of a region or environment". It has been difficult to limit this Element strictly to this field. One can rarely discuss the management of any plants or animals without considering their habitat, including rocks, soils, waters, topography and climate. Indeed, often the primary basis for protection of a species is to spend more time on the habitat than on the species itself.

The coldly scientific biologist concerned with the identification and classification of plants and animals is known as a systematist or systematic biologist. Generally, these biologists are highly specialized to one small group of plants or animals and often only concerned with single species or subspecies or variety. They examine chiefly internal and external structures of living things and try to lump those individual types together where similarities occur, and split apart in the classification schemes those with dissimilar characteristics. From the work of these people we have useful tools of classifications of living organisms into kingdoms, orders, families, genera, species and subspecies, in that descending arrangement.

There is considerable friendly disagreement among systematists as to where lines should be drawn between species, and especially subspecies. The classifications used for this Element were from the most widely accepted authorities. Coverage of the Element is limited to the higher flowering plants and excludes consideration of lower forms such as single cellular ones. Likewise, the Element concerns itself only with the higher forms of animals, the vertebrates, such as mammals, birds, reptiles, amphibians and fish.

It is probably true that many forms of lower plants and animals, such as insects and microscopic organisms, are either disappearing or forming on the earth. Our knowledge or public concern for these is not sufficiently developed to justify their inclusion in the Biological Resources Element. There seems to be today, however, a growing public ethic not to let any species become extinct. It is only in recent years that we have seen major public works, such as multi-million dollar highways having their alignment changed so as to protect the last known subspecies of salamander! It is only in the last two years that we have seen incorporated into the law of the state the preservation of 19 endangered and 24 rare animals. There is growing sentiment in support of this ethic and any environmental impact report that fails to identify with rare and endangered species is likely to be rejected as being incomplete.

#### Options for Preservation and Protection

Although our support for rare species is not now all inclusive of the plant and animal kingdoms, there is solace in any positive governmental or private program that acquires and preserves in as nearly natural a condition as possible representative ecological examples of all the types of landscape. We can only hope that such programs in the years ahead will prove that such actions prevented the extinction of many valuable forms of life which are hardly known today.

In a sense, therefore, programs to protect biological values may be split into two categories:

OPTION 1: Direct action to protect remaining populations of plants or animals when we become aware that they are in trouble.

OPTION 2: Setting aside from incompatible uses representative examples of the landscape in anticipation of preventing extinction of any species.

Generally Option 1 is the only action possible when we have allowed almost total annihilation of suitable habitat for a species to exist, or have directly killed or destroyed large numbers of plant or animal populations. Option 1, therefore, is a defensive one in which often the remedy is applied too late.

Option 2 is a positive type of solution to the protection of biological values. It prevents a population of plants or animals from reaching the critical stage where Option 1 is the only recourse. The protection of species through preservation of representative examples of the landscape has the additional advantage of protecting the various species in a near normal ecological relationship. There is much man does not know about the balance in nature, and the surest way to guarantee ecological balance or normal sequence of processes is to preserve as large a sample as possible of units of the landscape and allow free interaction of the species and populations within them. This approach takes much of the burden off of scientists and wild land managers in trying to identify exactly what habitat is needed to preserve each species. Our knowledge is not sophisticated enough to do this at this time, though the study process to provide this basic data is a simple one.

The Biological Resources Element recommends action based upon both options. The Element also directly places Tulare County in the initiative or leadership role in securing a coordinated action program among all levels of government to protect the biological values of the County.



## Selecting Natural Areas

How, then, should representative units of the natural or near natural landscape be selected? A number of approaches have been in existence for some time. All of them variously are based upon the same combination of factors: altitude, temperature, precipitation, slope and exposure, water availability, and "edaphic" or soil or substrate characteristics. Perhaps the most general and far-reaching approach, and one being pursued by the State of California, is the Landscape Province System. This system divides the State into nine landscape provinces (Figure II-2). Tulare County is represented in three of these: The Sierra Nevada, the Sierra Foothill and Low Coastal Mountain, and the Great Valley Landscape Provinces. The State Department of Parks and Recreation completed and published the Coastal Strip Landscape Province which will be extremely valuable in setting up a system of parks and preserves in this controversial region. Studies were completed but never published on the Redwood and Desert and Desert Mountain Landscape Provinces but the program was abandoned by the Department before they were published. Recently, however, the value of these plans was realized as essential by the State Office of Planning and Research (OPR) and new studies are in progress on the Great Valley and the Southwest Mountain and Valley Landscape Provinces. Fortunately Dr. Herbert Mason, who was a leader in the landscape province concept,

is engaged in the new studies for the State. He has offered to meet with Tulare County in furthering the Biological Resources Element. This current action by OPR hopefully will complete and publish all of the provinces in the State which will be the first comprehensive statewide expression of the state and national interest in preserving the natural landscape. These studies will help counties to plan to protect biological resources.

Other standard and long accepted classifications of the landscape include the Life Zone system (Merriam, 1898). It was originally based primarily upon climatic factors, largely temperature. This system was used by Sumner (1953). His book on the Birds and Mammals of the Sierra Nevada is mostly concerned with Sequoia and Kings Canyon National Parks. It was valuable in charting the distribution of rare and endangered species in Tulare County.

Tulare County is truly one of the most varied counties in the state with respect to biological values. It consists of parts of all the life zones that exist in North America. These zones from the lowest to the highest altitudes are: Lower Sonoran, Upper Sonoran, Transition, Canadian, Hudsonian and Arctic-Alpine. Tulare County's altitudinal range from Pixley National Wildlife Refuge to the summit of Mount Whitney roughly corresponds climatically to a lineal range from the San Joaquin Valley to the Arctic Circle.

Figure II-1

MAJOR VEGETATION TYPES AND PLANT COMMUNITIES IN CALIFORNIA	
VEGETATION TYPES	PLANT COMMUNITY
I. Strand	1. Coastal Strand
II. Salt Marsh	2. Coastal Salt Marsh
III. Freshwater Marsh	3. Freshwater Marsh
IV. Scrub	4. Northern Coastal Scrub
	5. Coastal Scrub
	6. Sagebrush Scrub
	7. Shadscale Scrub
	8. Creosote Bush Scrub
	9. Alkali Sink
V. Coniferous Forest	10. North Coastal Coniferous Forest
	11. Closed-Cone Pine Forest
	12. Redwood Forest
	13. Douglas-Fir Forest
	14. Yellow Pine Forest
	15. Red Fir Forest
	16. Lodgepole Forest
	17. Sub-Alpine Forest
	18. Bristle-Cone Pine Forest
VI. Mixed Evergreen Forest	19. Mixed Evergreen Forest
VII. Woodland-Savannah	20. Northern Oak Woodland
	21. Southern Oak Woodland
	22. Foothill Woodland
VIII. Chaparral	23. Chaparral
IX. Grassland	24. Coastal Prairie
	25. Valley Grassland
X. Alpine Fell-fields	26. Alpine Fell-fields
XI. Desert Woodland	27. Northern Juniper Woodland
	28. Pinion-Juniper Woodland
	29. Joshua Tree Woodland



## LANDSCAPE PROVINCES

Landscape provinces, or biotic provinces as described by persons interested in plants, cover large and continuous geographic areas with similarities in plant and animal types, climate, physiography, and soil. In California we recognize five landscape provinces. These five provinces are divided into 11 vegetational types and subdivided into 29 plant communities. The five landscape provinces are as follows:

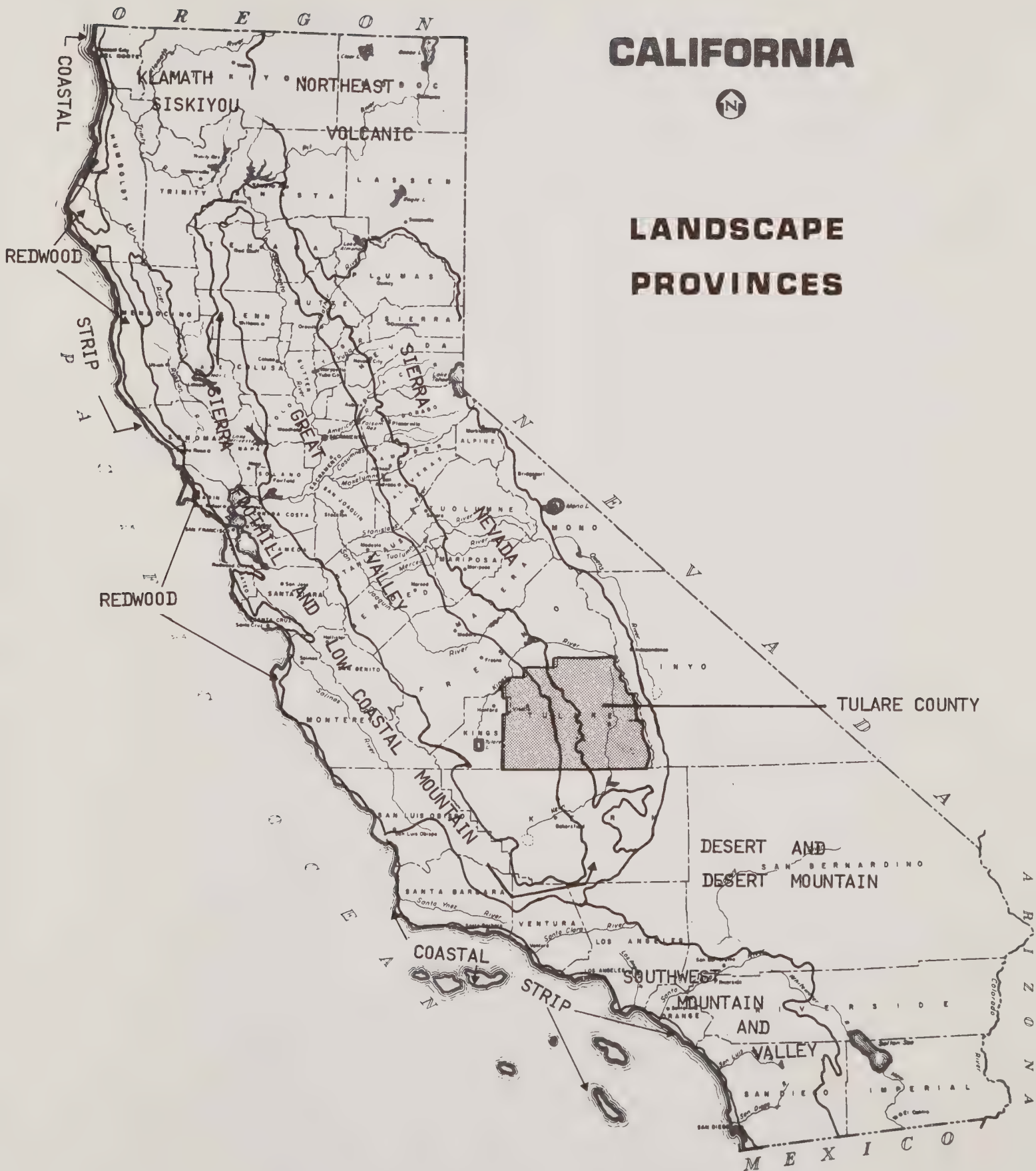
- (A) Oregonian, the cool moist coastal strip extending northward from Monterey County.
- (B) Californian, portions of California that include interior valleys and their surrounding hills, as well as coastal area extending south of San Francisco Bay.
- (C) Sierran, the mountainous regions extending southward from Oregon, including the Klamath-Cascade Range, Sierra Nevadas, Coastal Range, and the Transverse-Peninsular Ranges.
- (D) Nevadan, largely the "Great Basin," occurring east of the Sierra Nevadas and from the Owens Valley northward.
- (E) Southern Desert, including the desert areas of southeastern California.

Tulare County has four examples of the landscape provinces. The Californian province is exemplified by the Valley Grassland, Foot-hill Woodland, and Freshwater Marsh; the Sierran province by the Chaparral, Yellow Pine Forest, Red Fir Forest, Lodgepole Forest, Subalpine Forest, and Alpine Fell-fields; the Nevadan province by the Pinyon-Juniper Woodland and Sagebrush Scrub; and the Southern Desert province by the Alkali Sink.

The County is also fortunate to have some very unique vegetational types. The Pixley Wildlife Preserve is a prime example of Valley bunchgrasses; the creek and river systems of the County generate slough environments which are characterized by low lying, moist areas, usually covered with dense entanglements of brush, old stumps, and Valley Oak trees; and finally the pride of Tulare County, the 40 or so Redwood groves that are scattered along the Sierra.



Figure II-2





Phillip Munz (1968) describes the system of Biotic Provinces. These were originally described by Munz and Keck (1950). In California five Biotic Provinces exist called: Oregonian, Californian, Sierran, Nevadan, and Southern Desert. In turn these are subdivided into 11 Vegetative Types and further into 29 Plant Communities, as shown on the Table on Page 8.

For publication of the ERME, the State Department of Fish and Game and the State Division of Forestry developed for Tulare County a map of the vegetation which uses a slightly modified version of the Munz and Keck system of biotic communities. Because this map is available as part of the ERME (Page 88), it was decided to use it in the treatment of vegetation in the Biological Resources Element. It is the objective of the Element to recommend that a Countywide system of preserves be established including an example of each vegetative type in the County. These areas if determined properly should also include habitats for most of the animals. Figure II-2 shows the location of these vegetation types within the County.

## Uses of Biological Resources

Rather than organize the Biological Resources Element into logical subdivisions of the plant and animal kingdoms, the biological resources were packaged into units more applicable to planning and land use control methods. In terms of human uses of biological resources, they may be divided into two main categories: Nonextractive and extractive.

### Nonextractive Uses

Nonextractive uses are uses of plants and animals that do not involve their destruction. It is sometimes referred to as nonconsumptive use, but not "using up" of the resource. Generally, this is the type of use that is becoming a strong part of the environmental movement. It is a use around which many of the country's major conservation battles have been fought. Nonextractive values of plants and animals are difficult to identify, let alone quantify. Yet, both proponents and opponents of pure preservation of the landscape are quick to admit that they exist. Because of the difficulty in identifying values along this line, opposing forces tend to settle these conservation controversies by employing a large quantity of emotion and a lesser amount of objective facts. It is hoped that the Biological Resources Element will give the County a more objective basis for reducing such competitive demands on biological resources and all land uses.

In treating the nonextractive uses, the biological resources were divided into three main groups:

1. Protection of rare and endangered plants and animals.
2. Sightseeing and casual study of plants and animals.
3. Scientific and educational study.

The protection of rare and endangered species was lifted as a group from the others because of the urgent need to apply Option 1 (described above) as a remedy. This group was further divided into plants and animals.

The nonextractive uses for sightseeing and study include the broad need for uncluttered scenic natural or near natural open space that becomes target areas for tourists, artists, photographers and recreationists. Sightseeing and casual study of representative examples of the landscape is one of the fastest growing types of outdoor recreation today.

Representing only a more detailed type of viewing of the same landscape, are natural history buffs, hobbyists of a particular aspect of the biology, students, educators and scientists. There should be allocation of land in fair proportion to all of these legitimate needs. In meeting these needs there is more conflict with extractive users than among the nonextractive users themselves.

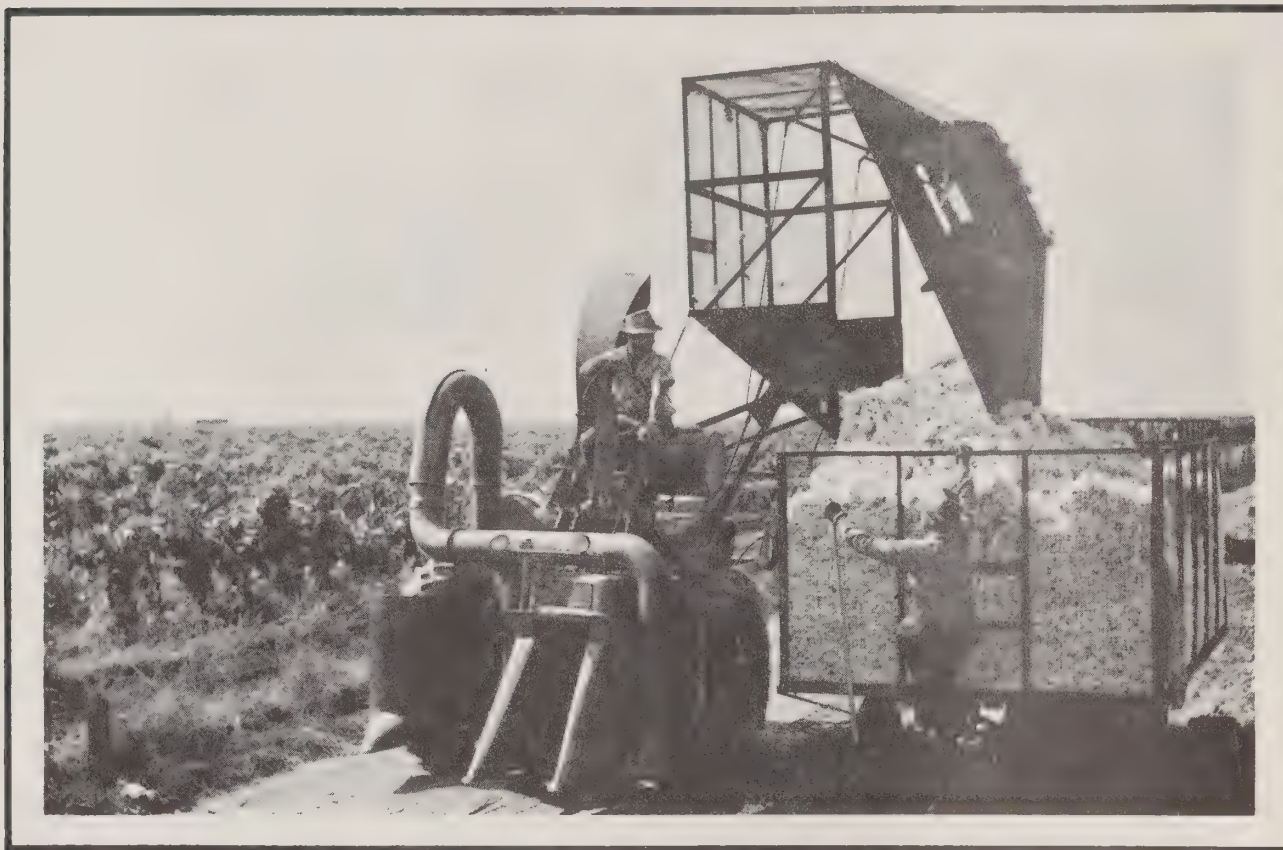
### Extractive Uses

Three main groupings of extractive uses of biological resources are treated in the Biological Resources Element. They are:

1. Hunting and fishing
2. Harvesting of timber
3. Agriculture

These groups are all dependent upon the harvest of plants or animals. Historically there has been considerable conflict among the extractive users of lands and waters for these purposes. Also, some of the most emotional feelings run between this group of users and the nonextractive users.





Two of the three main groupings of extractive uses of biological resources include agriculture and timber harvesting. A cotton-picking machine is shown in the upper photo as an example of the extractive use of biological resources to produce an agricultural product. A vital interdependence of man and the resources of soil (land), water, air, and solar energy is thus expressed.

The lower photo illustrates an aspect of timber harvesting, wherein the time-span between harvests is 40 to 80 times longer than annual crops. The harvest of trees represents the significant point of contact between man's more immediate need for an economic product and a resource system which requires a relatively long time to recover through the use of land, water, air and solar energy.



Source: Tulare County Chamber of Commerce

# Chapter III

## PROTECTION OF RARE AND ENDANGERED PLANTS







## CHAPTER III

### PROTECTION OF RARE AND ENDANGERED PLANTS

#### The Problems of Preservation

Historically there has been more public alarm and support for preservation of rare and endangered animals than for plants. Possible exceptions to this in California have been the purchase of large virgin stands of Coast Redwoods through efforts of the Save-the-Redwoods League and through public opposition to the continued logging of virgin stands of the Sierra Redwood, many of the best groves of which occur in Tulare County.

The number of the population that supports rare and endangered species are greater than one would think. There are many powerful conservation organizations with aggregate memberships running to the millions who are influencing governments at all levels to protect rare and endangered species. The federal government and California State government are developing supportive actions. There are many hobbyists, scientist-educators and students wanting protection of these natural values. Many organizations and individuals are bringing legal court injunctive actions against agencies and private developers. Environmental policies are being written in the law supporting the newly found ethic -- no plant or animal shall become extinct! It has become a rallying point for many wealthy people who contribute to saving a species, even though they may never observe it.

The protection of rare and endangered plants has not been adequately supported by government, as it eventually should. On the other hand, the State has been very active for the protection of animals.

A relatively new program on plants was begun in 1968 and has made good initial progress. It should be given adequate governmental support to provide an important ingredient toward the future improvement of our natural environment. It is the *Inventory of Rare and Endangered and Possibly Extinct Vascular Plants of California*, published by the California Native Plant Society (1972). This inventory is based upon the work of botanists throughout the State who are constantly adding to the list. The County is grateful for the assistance from this Society in identifying plants of critical concern in Tulare County. It is encouraging to learn that their work is being recognized by the State Office of Planning and Research and they are about to award a contract to the Society for mapping the rare and endangered plants of California. It is unfortunate that there was insufficient time to do the field work necessary to map the 30 rare and endangered plants in Tulare County.

The criteria used for placing plants on the list are as follows:

A plant is rare if:

1. It exists in only one or a very few restricted localities.
2. It occurs in such small numbers that it is seldom seen or collected regardless of its total area.
3. It exists only on a type of habitat that is likely to disappear or change for any reason.

A rare plant is endangered if:

1. It is actively threatened with extinction and not likely to survive unless some protective measures are taken.

According to these criteria, in Tulare County there are 15 plants that are endangered, or their safety is uncertain (see following Tables). None is believed to be extinct, as yet. Fifteen are rare but not currently endangered.

Of special interest is the fact that eight of the 30 rare and endangered plants are endemic to Tulare County and occur no other place in the world. Obviously with as many as 30 plants on the rare and endangered list, some are more critical than others. In the absence of detailed study of each plant, an attempt was made to place some kind of priority of concern on the list. Plants that are endemic to the County should receive the highest priority, and plants with the widest distribution extending over many counties beyond Tulare County should receive the lowest. Another factor relative to the responsibility of the County is the extent that the distribution of a plant is primarily on the federal lands of the County. As far as County obligation is concerned, a higher priority should be given to lands westerly of the north-south line that separates federal lands from the rest. Generally, the higher altitude plants occur in the mountains on federal lands. For some species, until further botanical field work can be accomplished, it is difficult to determine which of the plants at the middle altitudes and foothill areas are westerly of the "Federal Ownership Line". With some guessing, therefore, a tentative "priority-of-concern" to the County and federal agencies was established and is reflected in the list of priorities which will appear in the next few pages. Of the 30 species, eight are considered primarily of the concern of the Tulare County administration, and 22, the primary concern of higher levels of government, principally federal. Some state ownership occurs on or easterly of the federal ownership line and is included in that group. Of the 15 plants considered endangered, six appear to be the primary responsibility of Tulare County and nine the responsibility of federal agencies.

## Recommendations

1. That the County adopt a formal policy statement recognizing, in principle, its intent to cooperate to protect from extinction or dangerous diminution any rare and endangered native plants declared such by the Governor's Office, Office of Planning and Research, as occurring in Tulare County.
2. That immediately, the County request the State Office of Planning and Research to place in high priority the mapping of the distribution of the rare and endangered plants of the County, and the provision of descriptive information and illustrations of these plants.
3. That the County adopt a listing (and amend to keep current) the rare and endangered plants in the County, and require that all approvals for public works, private developments, zoning changes and environmental impact reports be reviewed with reference to these lists.
4. That the County formally, in writing, request the federal and state land management agencies in the County to take action and adopt appropriate regulations to protect rare and endangered plants on their lands in the County. This request should be accompanied with a copy of this Element (BRE), and a response should be requested within a limited period of time. A formal meeting with the agencies would be in order to discuss a cooperative approval of all levels and agencies concerned.
5. The Tulare County Board of Supervisors should encourage corporations and agencies, public and private, and individual citizens to apply good conservation practices to their lands to help maintain desired flora while sustaining long-term agricultural production and/or needed open space.
6. The Tulare County Local Agency Formation Commission should encourage the preparation of, and thereafter adopt, comprehensive contiguous Soil Conservation District boundaries wherein individual district may be enlarged by the usual means without an individual LAFCO hearing for each addition to the District within the predetermined maximum boundaries.
7. The Tulare County Board of Supervisors should instruct the Tulare County Planning Staff engaged in Environmental Impact Report processing to carefully relate this section of the Biological Element to the processes of preparing and reviewing EIR's.
8. Local and State agencies and private developers should avoid destruction of flora cited herein during the course of their prescribed construction, repair and maintenance, whenever zoning and building standards should be amended to note the need to conserve these endangered plants.
9. The California Department of Resources should supply, from its constituent divisions, photographs, drawings, and descriptions of all endangered flora - in a reproducible form - for use by local government line agencies, local corporations, and individuals wishing to participate in achieving these goals.
10. State, County, and City herbicide spraying programs should be carried out to minimize destruction of flora cited herein.
11. Tulare County should initiate cooperative agreements with the California State Department of Fish and Game, as empowered by the State Ecological Reserve Act of 1968, to acquire selected Ecological Reserves as identified in this Element.
12. Development practices that upset natural habitat in wetlands and watersheds should be controlled so as to minimize erosion and maximize beneficial vegetative growth. Waterways, as well as their banks and surrounding vegetation and habitats should be preserved.

FIGURE III-1

RARE AND ENDANGERED PLANTS OCCURRING IN TULARE COUNTY

SCIENTIFIC NAME	COMMON NAME	FAMILY	PRIORITY RATING	CODE OF COUNTIES WHERE IT OCCURS	HABITAT
<i>Abronia alpina</i>	(Same genus as Sand Verbena)	Nyctaginaceae	F IV	54	Sandy meadows, 8,000-9,000 ft., Lodgepole forest
<i>Aster Piersonii</i>	Aster	Asteraceae	F V	10, 14, 54	Subalpine and alpine meadows, moist gravelly slopes, 11,000-12,250 ft., subalpine forest, alpine fell-fields
<i>Astragalus subvestitus</i>	(Similar to Milkvetch-Locoweed)	Fabaceae	F II*	15, 54	Sandy meadows and sagebrush flats, S. Sierra Nevada, S. Fork Kern River, 8,000-8,500 ft.
<i>Atriplex vallicola</i>	Saltbrush	Chenopodiaceae	T III*	10, 15, 40, 54	Dried rain pools and flats; valley grassland
<i>Brodiaea insignis</i>	Brodiaea	Amaryllidaceae	F IV	54	Shepard Cove, Sequoia National Park
<i>Carex Whitneyi</i>	Sedge	Cyperaceae	F VI	5, 20, 22, 25, 29, 31, 32, 45, 54, 55	4,000-6,000 ft., Yellow Pine Forest, Sierra Nevada
<i>Castilleja Culbertsonii</i>	Indian Paintbrush	Scrophulariaceae	F VI	10, 14, 26, 54, 55	Wet meadows, 8,000-11,500 ft., lodgepole forest to alpine fell-fields
<i>Corydalis Caseana</i>	Corydalis	Fumariaceae	F VI	4, 18, 31, 32, 45, 46, 52, 54	Moist shade, 4,000-9,000 ft., yellow pine forest and red fir forest.
<i>Cupressus nevadensis</i>	Piute Cypress	Cupressaceae	F II*	15, 54	Dry slopes 4,000-6,000 ft., foothill woodland
<i>Dicentra formosa nevadensis</i>	Bleeding Heart	Fumariaceae	F V	10, 54	Moist places, 7,500-10,000 ft., lodgepole forest, subalpine forest
<i>Erigeron aequifolius</i>	Wild Daisy	Asteraceae	F I*	54	Dry ridges, 6,000-7,000 ft., yellow pine forest, red fir forest, Upper Kern River
<i>Erigeron multiceps</i>	(unknown)	Asteraceae	F I*	54	Gravelly spots near river banks, north Fork Kern River near Kernville
<i>Eriogonum Twisselmannii</i>	Wild Buckwheat	Polygonaceae	F I*	54	Dry, rocky outcrops, 7,900-8,200 ft., yellow pine forest, near the Needles
<i>Eriophyllum lanatum obovatum</i>	Woolly Yarrow	Asteraceae	F III*	15, 36, 54	Openings under pines, 4,000-7,000 ft., yellow pine forest, red fir forest, southern Sierra Nevada
<i>Euphorbia Hooveri</i>	Spurge (similar)	Euphorbiaceae	T III*	52, 54	Dried mud flats, valley grassland, Central Valley near Visalia and Yettam
<i>Fritillaria striata</i>	Fritillary	Liliaceae	T II*	15, 54	Adobe soil, up to 3,000 ft., valley grassland, foothill woodland; Sierra Nevada foothills.



FIGURE III-1 (Continued)

SCIENTIFIC NAME	COMMON NAME	FAMILY	PRIORITY RATING	CODE OF COUNTIES WHERE IT OCCURS	HABITAT
<i>Hackelia Sharsmithii</i>	Stickseed	Boraginaceae	F V	14, 54	Local, under overhanging rocks, 10,750-12,000 ft., subalpine forest, alpine fell-fields, region of Mt. Whitney
<i>Lupinus Dalesae</i>	Lupine	Fabaceae	F VI	5, 10, 14, 15, 20, 32, 45, 54, 55	Dry slopes, 3,000-10,000 ft., yellow pine forest, foothill woodland
<i>Navarretia setiloba</i>	Navarretia	Polemoniaceae	F II*	15, 54	Slopes and flats, 5,000-7,000 ft., yellow pine forest, foothill woodland
<i>Orcuttia californica inaequalis</i>	Orcuttia Grass	Poaceae	T III*	10, 20, 24, 34, 50, 54	Valley grassland
<i>Orcuttia Greenei</i>	Orcuttia Grass	Poaceae	T III*	4, 10, 20, 24, 39, 50, 52, 54	Moist open places, valley grassland
<i>Phacelia novemmillensis</i>	Phacelia	Hydrophyllaceae	F II*	14, 54	Dry disturbed banks, 6,500 ft., pinyon-juniper woodland
<i>Phacelia orogenes</i>	Phacelia	Hydrophyllaceae	F V	10, 54	Meadows about 8,500-10,300 ft., subalpine forest, near Mineral King
<i>Potentilla tularensis</i>	Cinquefoil	Rosaceae	F I*	54	Bald Mt., Kern Plateau, 9,430 ft.
<i>Pseudobahia Piersonii</i>	Pseudobahia	Compositae	T IV	10, 15, 54	Grassy floors and rolling hills in adobe, up to 1,000 ft., Valley grassland, east side of San Joaquin Valley
<i>Raillardella Muirii</i>	Raillarella	Asteraceae	F V	10, 54	Open slopes, 4,000-7,000 ft., yellow pine forest
<i>Sidalcea Keckii</i>	Checker	Malvaceae	T I*	54	Grassy slopes at about 1,200 ft., White River, near Glenville
<i>Streptanthus Farnsworthianus</i>	Streptanthus	Brassicaceae	T IV	10, 15, 54	3,000-4,000 ft.
<i>Streptanthus gracilis</i>	Streptanthus	Brassicaceae	F V	10, 54	Kings-Kern Divide, 10,000-11,000 ft.
<i>Triteleia Dudleyi</i>	Brodiaea	Amaryllidaceae	F IV	54	Upper Tule River region, 9,500-11,500 ft.

FIGURE III-1 (Continued)

<u>NATIVE PLANT SOCIETY COUNTY CODE NUMBERS</u>				<u>KEY TO PRIORITY RATINGS</u>	
4	Butte	5	Calaveras	*	Endangered
10	Fresno	14	Inyo	T	Tulare County Priority. Probably below and westerly of "Federal Land Ownership Line".
15	Kern	18	Lassen	F	Federal Priorities. Probably above and easterly of "Federal Land Ownership Line".
20	Madera	22	Mariposa	I	Highest
24	Merced	25	Modoc	II	See priority list for details
26	Mono	29	Nevada	III	See priority list for details
31	Placer	32	Plumas	IV	See priority list for details
34	Sacramento	36	San Bernardino	V	See priority list for details
39	San Joaquin	40	San Luis Obispo	VI	Lowest
45	Shasta	46	Sierra	*	Common names may be same as common names of more familiar members of genus which are not endangered.
50	Stanislaus	52	Tehama		
54	Tulare	55	Tuolumne		





Figure III-2

LIST OF PRIORITIES - RARE AND ENDANGERED PLANTSTULARE COUNTY PRIORITIES

(Probably below and westerly of "federal land ownership line")

(Listed with scientific name first and common name following)

A. Endangered

Priority I - Endemic to Tulare County

Sidalcea Keckii - Checker

Priority II - Occurs in Tulare County and one or more neighboring counties

Fritillaria striata - Fritillary

Priority III - Occurs in Tulare County and one or more counties beyond the neighboring counties

Atriplex vallicola - Saltbrush

Euphorbia Hooveri - Spurge (similar)

Orcuttia californica inaequalis - Orcuttia Grass

Orcuttia Greenei - Orcuttia Grass

B. Not Endangered

Priority IV - Occurs in Tulare County and one or more neighboring counties

Streptanthus Farnsworthianus - Streptanthus

Pseudobahia Piersonii - Pseudobahia

## FIGURE III-2

LIST OF PRIORITIES - RARE AND ENDANGERED PLANTSFEDERAL PRIORITIES

(Probably above and easterly of the "federal land ownership line")

(Listed with scientific name first and common name following)

A. EndangeredPriority I - Endemic to Tulare County

Erigeron aequifolius - Wild daisy  
Erigeron multiceps - (unknown)  
Eriogonum Twisselmanii - Wild Buckwheat  
Potentilla tularensis - Cinquefoil

Priority II - Occurs in Tulare County and one or more neighboring counties

Astragalus subvestitus - (Similar to Milkvetch-Locoweed)  
Cupressus nevadensis - Piute Cypress  
Navarretia setiloba - Navarretia  
Phacelia novemmillensis - Phacelia

Priority III - Occurs in Tulare County and one or more counties beyond the neighboring counties

Eriophyllum lanatum obovatum - Woolly Yarrow

B. Not EndangeredPriority IV - Endemic to Tulare County

Abronia alpina - (Same genus as Sand Verbena)  
Brodiaea insignis - Brodiaea  
Triteleia Dudleyi - Brodiaea

Priority V - Occurs in Tulare County and one or more neighboring counties

Aster Piersonii - Aster  
Dicentra formosa nevadensis - Bleeding Heart  
Hackelia Sharsmithii - Stickseed  
Phacelia orogenes - Phacelia  
Raillardella Muirii - Raillarella  
Streptanthus gracilis - Streptanthus

Priority VI - Occurs in Tulare County and one or more counties beyond the neighboring counties

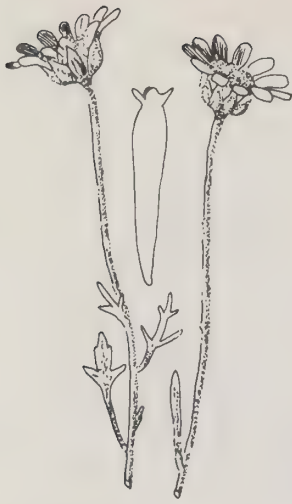
Carex Whitneyi - Sedge  
Castilleja Culbertsonii - Indian Paintbrush  
Corydalis Caseana - Corydalis  
Lupinus Dalesiae - Lupine

FIGURE III-3

## Rare and Endangered Plants

*ABRONIA ALPINA**ASTER PIERSONII**ASTRAGALUS SUBVESTITUS**ATRIPLEX VALLICOLA**BRODIAEA INSIGNIS**CAREX WHITNEYI**CASTILLEJA CULBERTSONII**CORYDALIS CASEANA**DICENTRA FORMOSA NEVADENSIS**ERIGERON AEQUIFOLIOS FLEABONE*

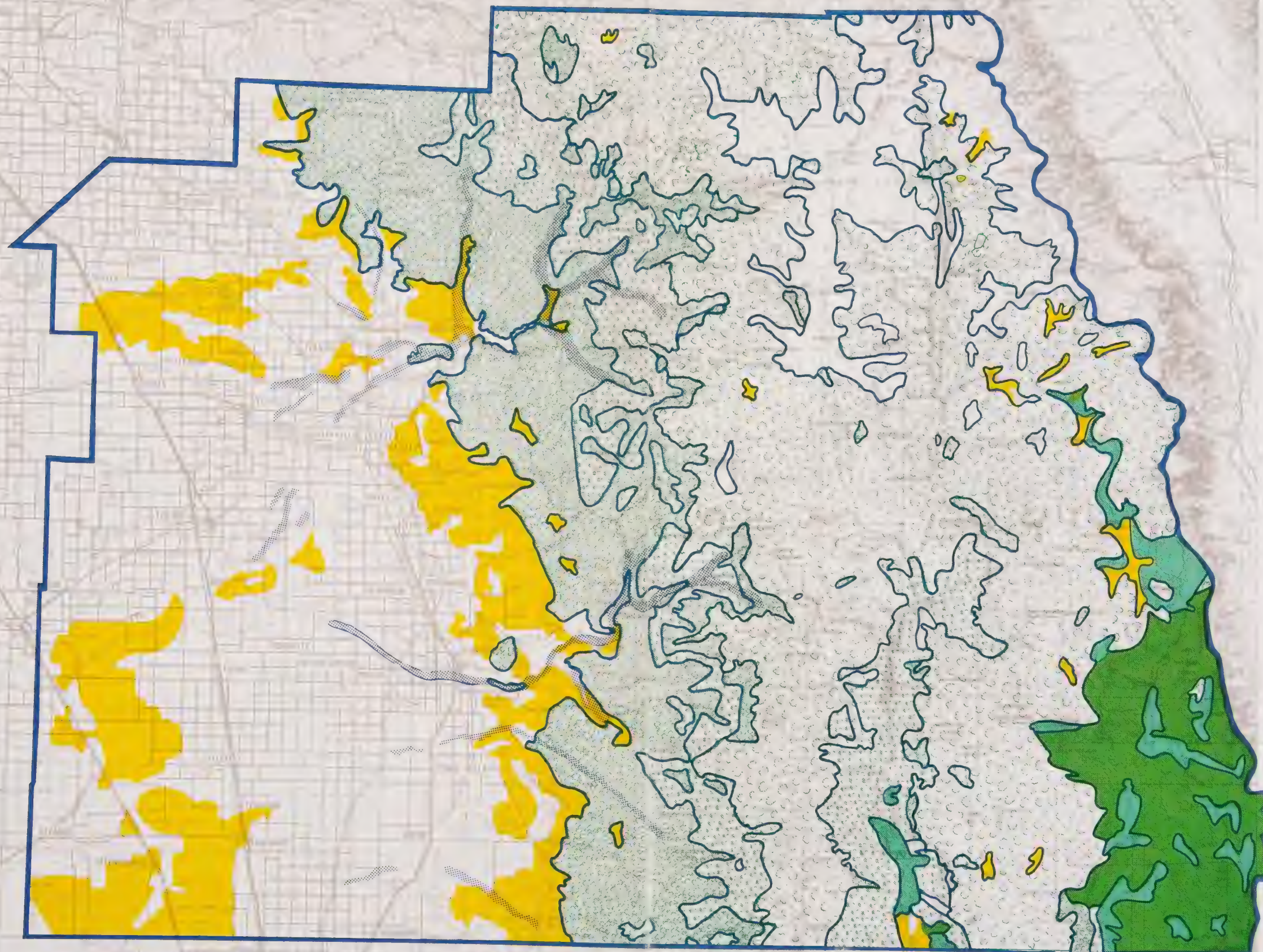


*ERIOPHYLLUM LANATUM OBOVATUM**FRITILLARIA STRIATA**NAVARRETTA SETILOBA**LUPINUS DALESIAE**ORCUTTIA GREENEI**ORCUTTI  
CALIFORNICA  
INAEQUALIS**PHACELIA OROGENES**PSEUDOBAHIA PIERSONII**RAILLARDELLA MUIRII**SIDALCEA KECKII**STREPTANTHUS GRACILUS*



This map shows the distribution of general vegetation maps in Tulare County. The map is useful in relating the distribution of vegetation as habitat for animal life as well as for its own biological values. There has not been time to do detailed field work to map the 30 rare and endangered plants in Tulare County, however, an understanding of the distribution of soils found on maps in the Soils Element of the General Plan, and of the landscape provinces, and this vegetation map, will give some insight about areas where rare and endangered plant life can be found, and some idea of how it can be conserved. In Valley areas some of these plant populations can be conserved by the use of hedge rows in areas otherwise farmed. In mountain and foothill areas, conservation is somewhat easier because of the lack of "clean farming" practices and the prevalence of public land ownership there. Environmental Impact Reports seek to identify these rare and endangered plant species and recommend for their conservation where possible within the context of a developing county.













## VEGETATION

### TULARE COUNTY

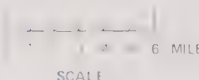
#### LEGEND

-  ALPINE: EASTERN AREA  
CULTURALLY ELIMINATED  
NATURAL VEGETATION:  
WESTERN AREA
-  WOODLAND
-  JUNIPER-PINON
-  GREAT BASIN SAGE
-  CONIFER
-  CHAPARRAL
-  GRASSLAND
-  RIPARIAN (AREAS ADJOINING  
WATERWAYS)

SOURCES: California State Department of Fish and Game  
California State Division of Forestry  
Base Map Modified from U.S.G.S. 1:250,000 map



NORTH



SCALE

PREPARED BY TULARE COUNTY PLANNING DEPARTMENT





# Chapter IV

## PROTECTION OF RARE AND ENDANGERED ANIMALS







## CHAPTER IV

### PROTECTION OF RARE AND ENDANGERED ANIMALS

Essentially, those people who are the supporters of the protection of native plant life equally support the protection of animal life. These people are described briefly in Chapter III.

Special legislation protecting rare and endangered animals is farther advanced than for plants. The big push for protection of these animals began in the Legislature and is beautifully described in the State publication, "At the Crossroads" (1972). The movement to preserve species is worldwide in nature. A sequence of milestone events leading to California's forward program in this regard is listed below from the Crossroads publication.

#### INTERNATIONAL

1966 - International Union for Conservation of Nature, Morges, Switzerland, publishes a list of worldwide species it considers to be rare or endangered.

#### NATIONAL

1966 - Endangered Species Preservation Act gives authority to the Secretary of the Interior to publish a list of native animals threatened with extinction and to provide federal programs of research and protection.

1969 - Endangered Species Conservation Act extends to the Secretary of the Interior authority to deem endangered those worldwide animals faced with extinction and to prohibit their importation into the United States without permit.

#### STATE

1968 - Ecological Reserve Act, established for the purpose of protecting rare or endangered wildlife or aquatic organisms or specialized habitat types, gives authority to the Department of Fish and Game to acquire by purchase, lease, gift, or otherwise land and water to be set aside as Ecological Reserves.

1970 - California Species Preservation Act directs the California Department of Fish and Game to inventory all threatened fish and wildlife, develop criteria for rare and endangered, and report to the Governor and the Legislature every two years on the status of these animals.

1970 - Endangered Species Act expresses legislative concern over California's threatened wildlife, defines rare and endangered wildlife, and gives authority to the Fish and Game Commission to deem what animals in California are rare and endangered.

1970 - Assembly Joint Resolution 31 memorializes the President, Congress, and the Secretary of the Interior to assist the California Department of Fish and Game to compile a species inventory of threatened fish and wildlife of the State, to establish a set of criteria for determining rare and endangered species and to assist in a study of predatory control programs.

1970 - Prohibition Against Importation of Endangered Wildlife. Penal Code Sections 6530a and 653p prohibit importation for commercial purposes and the selling of specified animals, including those listed by the Secretary of the Interior as endangered.

Based upon the authority provided by the Legislature, the Fish and Game Commission on May 21, 1971, approved an official list of rare and endangered animals. This list became a part of Title 14 of the California Administrative Code, and as such has the full force of law. The list of 43 includes the following:

	<u>Endangered</u>	<u>Rare</u>
Birds	8	2
Mammals	2	9
Fishes	5	4
Amphibians	2	6
Reptiles	<u>2</u>	<u>3</u>
Totals	19	24

#### Criteria

As determined by the Legislature, this program will provide an eternal conscience for the enforced protection of these animals. The criteria used for designation of "endangered" or "rare" by the Fish and Game Commission are as follows:

Endangered: If the answer is "yes" to any of the following questions, the animal is considered endangered.

1. Does the mortality rate of the animal consistently exceed the birth rate?
2. Is the animal incapable of adapting to environmental change?
3. Is the habitat of the animal threatened by destruction or serious disturbance?

4. Is the survival of the animal threatened by the unwanted introduction of other species through predation, competition, or disease?
5. Does environmental pollution threaten the survival of the animal?

Rare: If the answer is "yes" to any of the following questions, the animal is declared rare.

1. Is the animal confined to a relatively small and specialized habitat, and is it incapable of adapting to different environmental conditions?
2. Although found in other parts of the world, is the animal nowhere abundant?
3. Is the animal in California so limited that any appreciable reduction in range, numbers, or habitat would cause it to become endangered?
4. If current management and protection programs were diminished in any degree, would the animal become endangered?

Based upon the above criteria, four endangered species and six rare species occur in Tulare County. None of these is endemic or restricted entirely to the County. The ranges of these were mapped for the County. (See following page.) These ranges are accurate as possible to this date. Initially, the Sacramento office of the Department of Fish and Game charted the ranges of the species.

This information was supplemented from knowledgeable agencies and people in the field, from colleges and from detailed examination of the literature by the consultant. For some, available sightings are dotted on the map, which assisted in drawing the ranges. For others, only the range is marked encompassing the preferred habitat where they are known to occur.

The following is the list of those endangered species in Tulare County:

California Condor  
Southern Bald Eagle  
American Peregrine Falcon  
Blunt-Nosed Leopard Lizard

The following is the list of those rare species in Tulare County:

San Joaquin Kit Fox  
Wolverine  
California Bighorn Sheep  
Kern Canyon Slender Salamander  
Tehachapi Slender Salamander  
Giant Garter Snake

In addition to the 10 animals officially listed by the State, five additional animals "Of Special Concern" are mapped:

Tiger Salamander  
Overlap of Relictual and California Salamander  
Unique Population of Slender Salamander  
Little Kern Golden Trout  
Great Blue Heron

See map on "Habitat of Endangered, Rare and Special Concern Animals".

It is difficult to apply priorities to the saving of these animals. As in the protection of plants, emphasis is placed on what role the County should play. Because of the range of some of these animals, a primary responsibility is warranted by the federal land-owning agencies. There is every indication that through a cooperative effort of the U.S. Forest Service, Bureau of Land Management, National Park Service and the Department of Fish and Game, a concerted effort is being made to protect the California Bighorn Sheep, Wolverine and American Peregrine Falcon. These occur in Tulare County east of the "Federal Land Ownership Line" and are chiefly on these federal lands. By interpretation of the law and by establishment of federal policies, the State Department of Fish and Game is responsible for the wild animal life on all federal lands in California, except the national parks. Extremely critical for the perpetuation of the Bighorn, Wolverine and Peregrine Falcon is the prevention of further roads and human developments in the wilderness back country east of the boundary of the "roadless area" shown in the map.

Perhaps of less concern to the federal agencies are the recently recorded occurrences of the Tehachapi Slender Salamander near Beach Meadows Guard Station, and the Kern Canyon Slender Salamander near Fairview. Both of these are in the Sequoia National Forest. The limited ranges of both of these species barely extends into Kern County. Dr. Robert Stebbins of the Museum of Vertebrate Zoology, University of California, and the Museum Director, David Wake, are authorities on these and the Forest Service and Department of Fish and Game should engage them to help develop management plans to save these animals.

The Kern Golden Trout, one of the few native inland fishes of California, is restricted to the Little Kern River and is of concern to both the Forest Service and the National Park Service. This species is being watched closely by the Department of Fish and Game to see if fishing pressure or other factors require that it be placed on the rare and endangered list. If so placed, it would be unlawful to take this fish.





*Four endangered species and six rare species of animal life occur in Tulare County. None of these are restricted entirely to this county alone. This map shows the ranges of these animals and is as accurate as it is possible to compile at this time. The Sacramento Office of the Department of Fish and Game has charted the ranges of these species.*

*In addition, knowledgeable agencies, people in the field, and local college information, as well as detailed examination of literature by the consultant has assisted in placing of these boundaries and areas on the map. In some cases available sightings are dotted on the map. In some cases, the range is marked to encompass the preferred habitat where the species is generally known to occur. This map can be compared to the Land Use map of Tulare County, found in the Land Use study and to the Soils and Vegetation maps found elsewhere. Such a comparison may give insight into why these species are distributed as they are in Tulare County.*







# HABITAT OF ENDANGERED, RARE AND SPECIAL CONCERN ANIMALS



## TULARE COUNTY

### LEGEND

#### ENDANGERED ANIMALS

-  CALIFORNIA CONDOR
-  SOUTHERN BALD EAGLE
-  AMERICAN PEREGRINE FALCON
-  BLUNT-NOSED LEOPARD LIZARD

#### RARE ANIMALS



-  SAN JOAQUIN KIT FOX
-  CIRCLE INDICATES RECORDED SIGHTINGS

-  KERN CANYON SLENDER SALAMANDER

-  TEHACHAPI SLENDER SALAMANDER

-  GIANT GARTER SNAKE

#### SPECIAL CONCERN ANIMALS

-  TRIANGLES INDICATE RECORDED SIGHTINGS
-  CALIFORNIA BIGHORN SHEEP

#### SPECIAL CONCERN ANIMALS

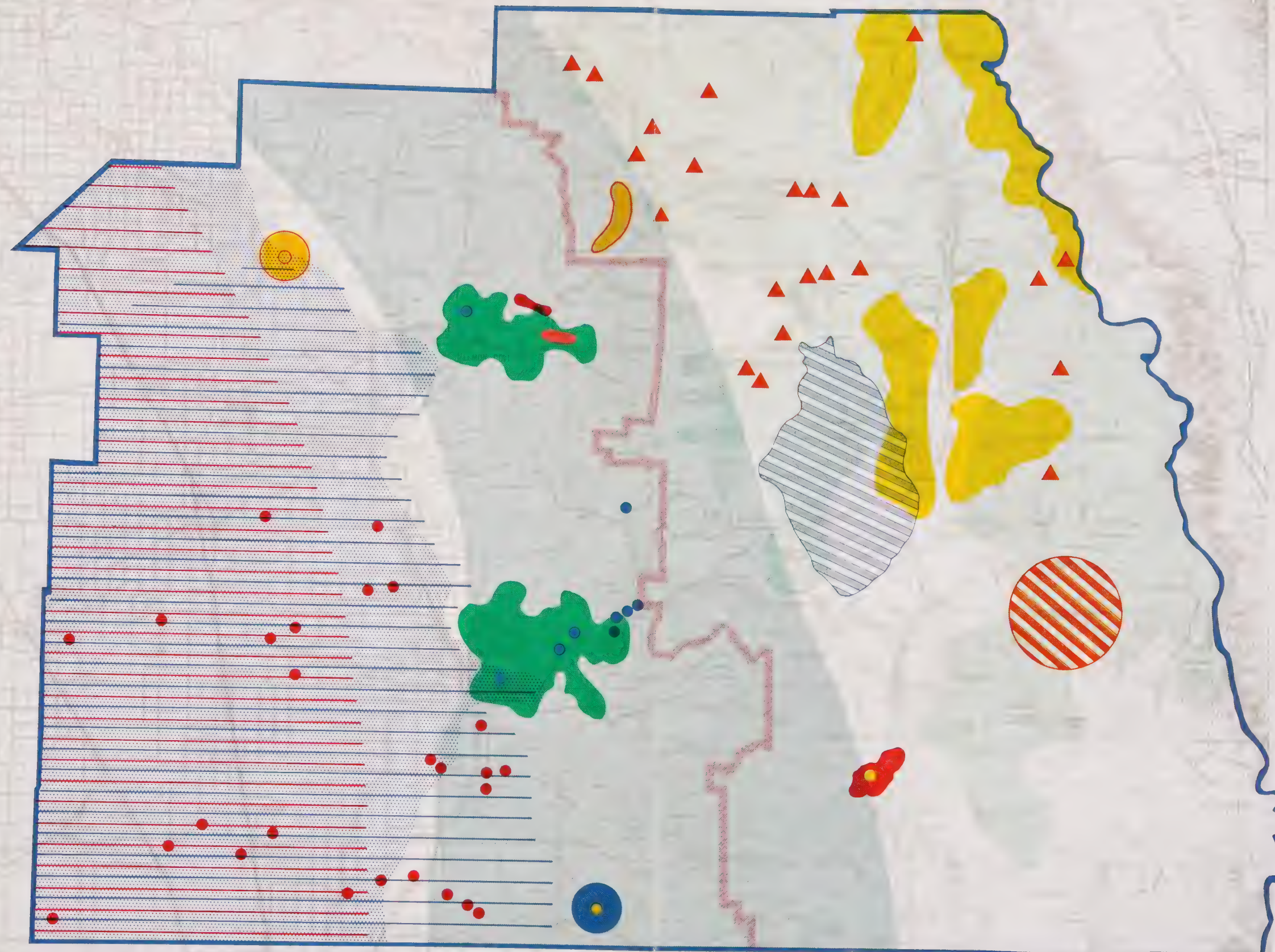
-  TIGER SALAMANDER
-  RARE OVERLAP OF SLENDER SALAMANDER
-  UNIQUE POPULATION OF CALIFORNIA SLENDER SALAMANDERS
-  GREAT BLUE HERON ROOKERY
-  LITTLE KERN GOLDEN TROUT
-  PUBLIC LAND BOUNDARY

Sources: Grunwald, Crawford and Associates



SCALE

PREPARED BY TULARE COUNTY PLANNING DEPARTMENT









Because of the controls the County has over development in the westerly half of the County, it must assume a greater responsibility for the protection of rare and endangered animals. In cooperation with the Department of Fish and Game, the County should review its existing policies and zoning, and perhaps consider new regulations to protect these animals. Those species clearly falling in this category are the Kit Fox, Leopard Lizard and the Giant Garter Snake.

Both the Leopard Lizard and Kit Fox prefer what little is left of the wide open Lower Sonoran desert in the southwest corner of the County. The staff of Fish and Game and the Pixley National Wildlife Refuge have been helpful in identifying the needs of these animals. There is strongly indicated an expansion of the boundaries of the Refuge to include some critical habitat for both animals. As pointed out later, protection in its near-natural state of more of this type of area is important to preserve ecological remains of original California landscape.

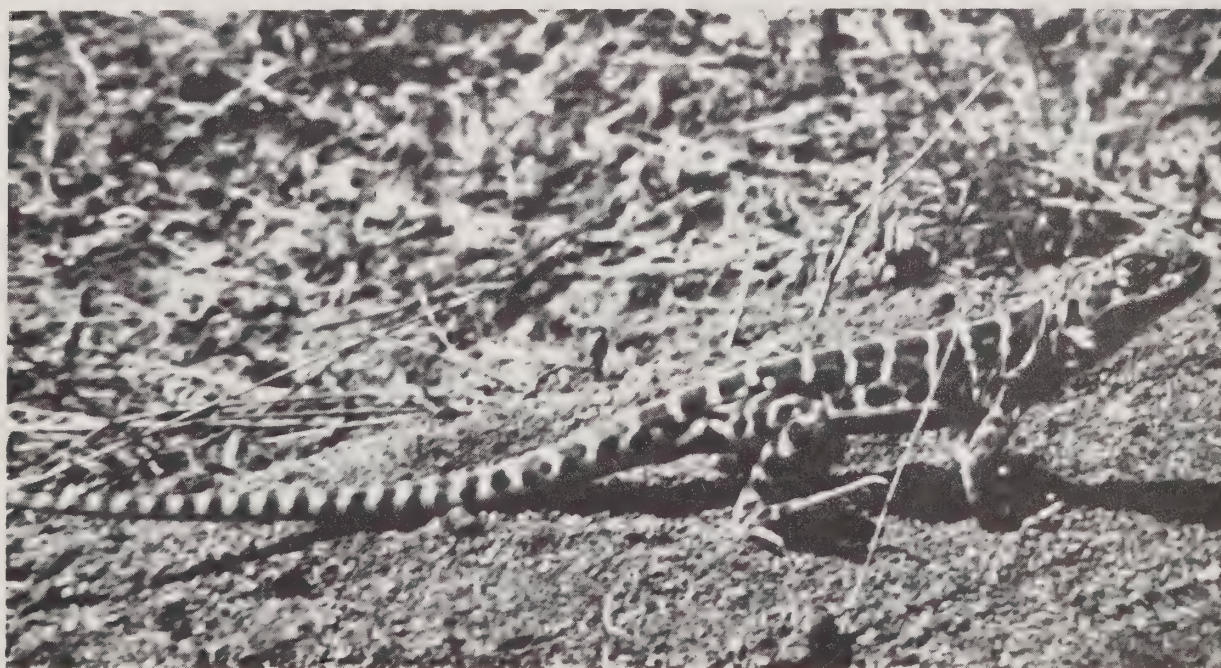
The Giant Garter Snake is known from the flood plain between Porterville and Lake Success. Any adverse land use, such as for hab-

itat disturbing developments or the present off-the-road motorcycles, should be eliminated.

Those situations of special concern to the County should include the recent discovery of the Tiger Salamander near Yettem; the rare overlap of the Relictual and California Slender Salamanders on the South Fork of the Kaweah River; the location of Great Blue Heron Rookeries at Lake Kaweah and along the Tule River from Porterville to easterly of Springville; and a unique population of the California Slender Salamander near the town of White River (these could be a new specie). No adverse uses of land should be permitted that would damage this specie.

Tulare County should participate heavily in the state and national concern for preservation of the California Condor and the Southern Bald Eagle. The Condor is the most critical of these, with perhaps only 50 birds remaining. Regular appearances are made in the broad habitat band shown on the map. This is their general South Sierran hunting range, and because they feed on carrion, their present success may be closely tied to the cattle industry and the deer population. *It is important to the Condor that major foothill ranch properties, such as in the Yokohl area, remain intact.*

*Source: Department of Fish and Game*



*The Blunt Nosed Leopard Lizard prefers the wide open lower Sonoran Desert environment in the southwestern area of Tulare County. The Staff of the Department of Fish and Game in the Pixley National Wildlife Refuge have been helpful in identifying the needs of these animals. There is a strongly indicated need for expansion of the boundaries of the Pixley National Wildlife Refuge to include, among other things, more critical habitat for these endangered species. The lizard, like the canary in the mine, is an indicator of the stability of the total ecological system. If the habitat is destroyed or significantly altered, the lizard as a species will disappear. Thus this animal is an indicator of the ecological system that is preserved in the National Wildlife Refuge near Pixley.*





The San Joaquin Kit Fox is another inhabitant of the Lower Sonoran Desert area in the southwestern part of Tulare County. His habitat has been found in recent studies to extend farther to the east than was previously thought. The San Joaquin Kit Fox is listed as a rare species in Tulare County as well as this end of the Central Valley: His habitat is a wide, open, semi-desert kind of country side. Intensive irrigated agriculture tends to displace this animal from the natural habitat, however some conservation measures which preserve cover, water and habitat, for the life upon which this animal feeds, can contribute to his conservation. The proposed expansion of the Pixley Wildlife Refuge would significantly add to the conservation of this rare animal in Tulare County.

Source: David Moore, Tulare County Planning Department



Much popular writing has given rise to the idea that the California Condor may be restricted to places west of this County. That is not the case. This photograph shows a part of the habitat of the California Condor in Tulare County. It is one of the most critical of the endangered species found here. There are perhaps 50 birds remaining. Regular appearances of the California Condor are made in a broad habitat band shown on this map. This is their general South Sierran hunting range. They feed principally on carrion and their present success in this area is closely tied to the cattle industry and the deer population. It is important to the Condor that major foothill properties such as those in the Yokohl area remain intact.

## Endangered Animal Species in Tulare County



California Condor



American Peregrine Falcon



Southern Bald Eagle



Blunt-Nosed Leopard Lizard



## Rare Animal Species in Tulare County

ILLUSTRATED BY TULARE COUNTY PLANNING DEPARTMENT



Wolverine



San Joaquin Kit Fox



Giant Garter Snake



Kern Canyon Slender Salamander



Tehachapi Slender Salamander



California Bighorn Sheep

The Tribal Council of the Tule Indian Reservation reports frequent sightings at the higher levels. Perhaps no other species of wildlife is more vulnerable to urban development than this magnificent bird. Proliferation of vacation subdivisions and increased secondary road systems could well be the inexorable demise of the South Sierran range of the Condor. Tulare County could become a leader among local governments if it would assume the initiative in establishing a special new zoning regulation for the control of developments to protect rare and endangered species, especially the Condor.

Occurrences of the Bald Eagle in the County are mainly due to the creation of Lakes Kaweah and Success. Seen more frequently are the very interesting Ospreys in the same habitat. Protection by prevention of excess developments and by concerted protection from guns hold the key to survival of the Bald Eagle in Tulare County.

Among other threats to birds and animals in Tulare County, such as decreased habitat, pollution of surface waters with biological degradation, destruction of certain species of wildlife which are accepted as harmful to agriculture, are man-made, though often accidental, traps. Oil sumps (drainage basins for brackish, oily water brought up during drilling operations), are common throughout the San Joaquin Valley, and occur in several thousand locations. Birds and animals fall into them, for one reason or another, and death is inevitable, in most cases. It has been estimated that more than 150,000 birds die annually, as a result of the sumps, as well as substantial numbers of mice, rabbits, snakes, squirrels, gophers, coyotes, deer and domestic sheep, cattle and dogs. Every effort must be made to cover, drain, or fill such sumps to reduce this needless waste of valuable wildlife resources.

### Recommendations

1. That the County adopt a formal policy recognizing in principle its responsibility to protect from extinction or dangerous diminution any rare and endangered native animal declared such by the State Department of Fish and Game as occurring in Tulare County (could combine with similar resolution on plants).
2. That the County adopt an ordinance listing (and amend to keep current) the rare and endangered animals in the County, and require that all approvals for public works, private developments, zoning changes and environmental impact reports be rejected unless it is shown that the rare and endangered animals are not adversely affected.
3. In keeping with the interest of the County in knowing all facets of its critical resources, especially as stated in Recommendation No. 1, immediately above, the County should convene representatives of the federal agencies and the Department of Fish and Game and draw up a set of guidelines and a program to assure that all levels of government are working in concert for the protection of rare and endangered species. Particular emphasis should be placed upon the needs of the County to control developments that are adverse to this cause. Such guidelines should be given adequate publicity to reduce the number of applications for adverse developments.
4. Because of the expressed willingness on the part of the Tribal Council of the Tule Indian Reservation during this study to discuss protection of rare and endangered species on the Reservation, the County should arrange a meeting on the Reservation with Fish and Game included, to discuss assistance from the Indians in a coordinated protection for rare and endangered species (including plants).
5. The Tulare County Board of Supervisors should encourage corporations and agencies, public and private, and individual citizens to apply good conservation practices to their lands to help maintain desired fauna while sustaining long-term agricultural production and/or needed open space.
6. The Tulare County Local Agency Formation Commission should encourage the preparation of, and thereafter adopt, comprehensive contiguous Soil Conservation District boundaries wherein individual district may be enlarged by the usual means without an individual LAFCO hearing for each addition to the District within the predetermined maximum boundaries.
7. The Tulare County Board of Supervisors should instruct the Tulare County Planning Staff engaged in Environmental Impact Report processing to carefully relate this section of the Biological Element to the processes of preparing and reviewing EIR's.
8. Local and State agencies and private developers should avoid destruction of fauna cited herein during the course of their prescribed construction, repair and maintenance. Zoning and building codes should be amended to reflect such operations.



9. The California Department of Resources should supply, from its constituent divisions, photographs, drawings, and descriptions of all endangered fauna - in a reproducible form - for use by local government line agencies, local corporations, and individuals wishing to participate in achieving these goals.
10. State, County, and City herbicide spraying programs should be carried out to minimize destruction of fauna cited herein.
11. Tulare County should initiate cooperative agreements with the California State Department of Fish and Game, as empowered by the State Ecological Reserve Act of 1968, to acquire selected Ecological Reserves as identified in this Element.
12. Development practices that upset natural habitat in wetlands and watersheds should be controlled so as to minimize erosion and maximize beneficial vegetative growth. Waterways, as well as their banks and surrounding vegetation and habitats should be preserved.
13. Tulare County should amend its ordinance, to require, upon issuance of a permit for oil drilling in the County, the condition that oil sumps be vacuumed or skimmed daily to separate oil wastes from water therein, or that sump be completely covered to protect animals and birds from hazards arising from such installations. Such sumps already in existence should be inspected for conformance to these standards and recommendations made for their improvement.

Source: Department of Fish and Game



The Southern Bald Eagle is an endangered species in Tulare County and California. Occurrences of Bald Eagle in the County are new mainly due to the creation of lakes in the foothill area; particularly Lake Kaweah and Lake Success. These birds are seen more frequently than they were in past times because of the improved habitat that these lakes have created for them. Protection from accidental or purposeful shooting seems to hold the key to the survival of the Bald Eagle in Tulare County. Some other threats to these birds include decreasing habitat, pollution of surface waters with biological degradation, destruction of certain species of wildlife upon which the eagles feed and often accidental traps such as oil sumps or otherwise polluted bodies of water that these birds frequent.





*The Wolverine is listed as a rare animal species in Tulare County. The development of human dwellings generally disrupts the habitat of this animal. Current distribution of the animal is principally concentrated in the foothill and mountain areas of the County.*

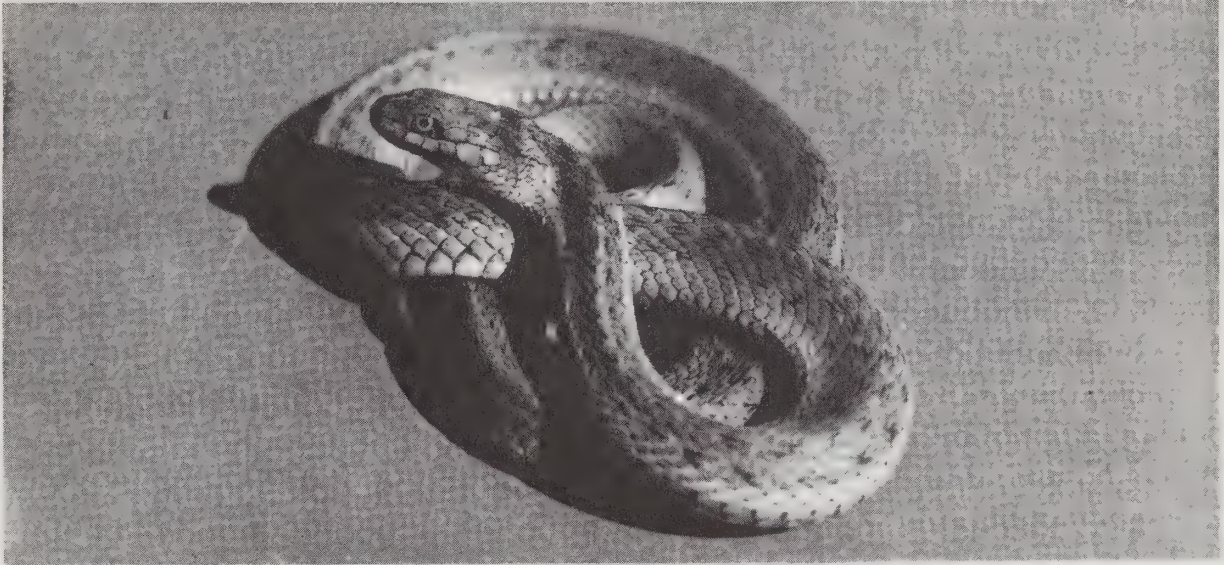
Source: Department of Fish and Game



*The Golden Trout from the Kern River is one of the five additional living things listed as "Of Special Concern." The Kern Golden Trout is one of the few native inland fishes of California. It is restricted to the little Kern River. It is of concern to both the Forest Service and the National Park Service. The species is being watched closely by the Department of Fish and Game to see if fishing pressure or other factors require that it be placed on the rare and endangered list. If it is so placed, it would be unlawful to take the fish.*

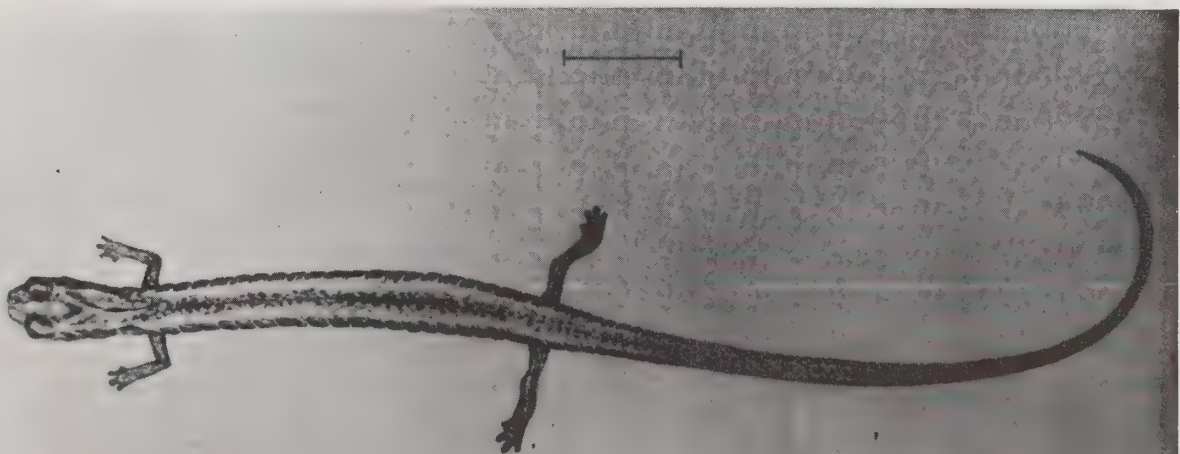


Source: California Department of Fish & Game/photo by John M. Brode



The Giant Garter Snake is found along the floodplain between the Lake Success Dam and Porterville. An adverse land use such as habitat-disturbing developments will create a severe hazard for the perpetuation of this rare species. Apparently this snake is found nowhere else in California and some care in the use and alteration of its habitat must be taken or it is certain that it would be eliminated. Possibly some effort could be made toward relocating the animal in a similar habitat elsewhere. No work has been done to date on this project. Land clearing, drainage improvement, elimination of small animals and insects upon which the snake feeds, or water pollution would create severe hazards for this reptile.

Source: California Department of Fish & Game/drawing by Patricia L. Brame



The California Slender Salamander is one of the rare species found in Tulare County. This Salamander is found in a unique population near the town of White River. There is speculation that this could be a new species. Until more specific information is available concerning this species, no adverse uses of land should be permitted that damage the species in its habitat.

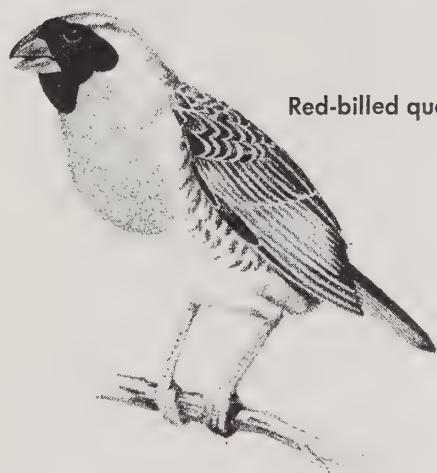
FIGURE IV-3

Mongoose



Cobra

Red-billed quelea



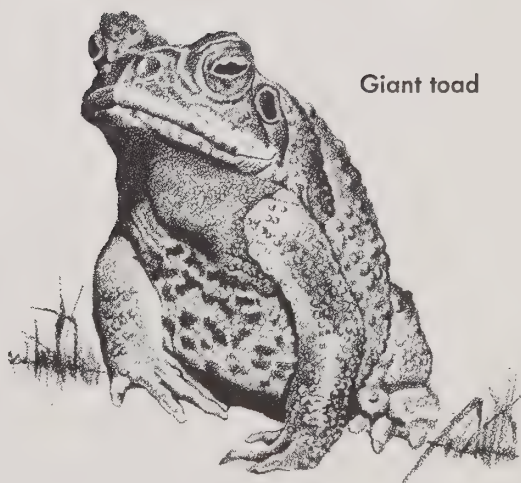
Kinkajou



Cuckoo



Giant toad



Artwork by Paul B. Johnson

Comprehensive protection of rare and endangered species requires recognition of the fact that there are some wild animals, not originally native to this State, which may constitute a threat to both people and animals. Some are destroyers of crops, others compete with native species. Others are contributors to pollution or disease, many have predatory habits not in the best interests of domestic poultry or game, and a few are poisonous, and others distinct nuisances. Importation of these birds and animals is regulated by State and Federal Law. They are thus important to note in this discussion of our biological resources.

One foreign element injected into the tenuous balance of local ecosystems may endanger or delete a desirable native species.

Some of the more important species on the prohibited list are birds including the skylark, cuckoo, red-whiskered bulbul, and red-billed quelea. Animals include the gerbil, weasel and ferret, mongoose, and kinkajou. Two fish, the fresh water drum (sheepshead), and piranha and two reptiles, the giant (poisonous) toad and the cobra are listed. These species, foreign to local ecosystems, are recommended for elimination if any are found in this area.





# Chapter V

## SIGHTSEEING AND CASUAL STUDY OF BIOLOGICAL RESOURCES







## CHAPTER V

### SIGHTSEEING AND CASUAL STUDY OF BIOLOGICAL RESOURCES

Sightseers are recreationists - passive recreationists. Surveys show many sightseers have not analyzed why they sightsee, but it appears that one basic factor provides a stimulus to sightsee: for change from the routine of everyday work and activity. They will tell the recreation interrogator that it is great to go look at something different -- a spectacular stream -- but after a while, it is good to get back. Again, change! Spans of interest vary so that periods of change are required more often by some people than others. It is this demand for change that creates excruciating visitor pressures on the state's natural resources, especially the biological ingredients of the natural or near-natural scene.

What are the main things the general public looks at in this sightseeing quest? There are four main categories:

1. Areas and structures of historic values. (It is recreation for many to identify themselves vicariously with the past.)
2. Contemporary events (fairs, rodeos, races, spectator sports, music, drama and other cultural events).
3. Spectacular man-made structures (dams, tall buildings, bridges, power plants, etc.).
4. Natural and near-natural scenery (composite of outstanding topographic or geological forms, lakes, rivers, coastline, mountains, canyons, pristine forests and other plants, associated animal life and changed climate).

This quest for change brings to a county like Tulare great returns economically, and hopefully this incredibly beautiful County provides change to its visitors of the highest quality. Thus, by sharing its resources with the visitor, the County contributes to the moral tone of our society, nationally. The more immediate tangible economic benefits of growth in visitation is seen by some as the main purpose in tourism. Our country is replete, however, with examples of decadence of the open space scene where "free" enterprise, with no plans or aesthetic controls, has destroyed or degraded the very original attractiveness which the people came to see. There are some indications of this problem developing in Tulare County. The uncontrolled yielding to all the demands for development inevitably brings incompatible uses together: lands become less attractive.

This Chapter of the Biological Resources Element attempts to identify the principal scenic areas of the County that are attractive because of their biological values. The following map was drawn showing high priority scenic areas and their access roads. These scenic areas are targets for people both from within and from without the County. People in this category come to these areas for casual viewing of the broad scene, not scientific ecological study of the plants and animals. They also come for appropriately related types of recreation: hiking, fishing, camping, picnicking, photography, painting, relaxing and generally enjoying the surroundings without dissecting the reasons why it is so attractive. Others do come for scientific and educational study, but this is treated later in the Element.

In analyzing the sightseeing needs of the public, a distinction was made between road-oriented recreation and roadless recreation. One only has to look at the map and note that Tulare County perhaps contains more roadless-oriented wilderness and spectacularly beautiful mountain scenery than any other county. There is also much great scenery that can be viewed from the car. It is highly unlikely that we will even be able to settle on what the fair proportion of roadless scenery to automobile-accessible scenery ought to be.

(See opposite page.)

The map shows the present dividing line separating the road-oriented areas and wilderness to the east. The demand for the wilderness has increased to the extent that the back country in the National Parks and Forests is being rationed by permit. It probably is only a matter of time until public use of horses in much of the back country will be eliminated because of the damage they do to biological values, as well as erosion and draining of meadows. In the light of demand for wilderness hiking, it seems inadvisable to push through any additional trans-Sierra highways and more road heads where trails begin.

Road-oriented scenic target areas are largely within federal lands: Sequoia and Kings Canyon National Parks and the Sequoia National Forest. Some 40 groves of Sierra Redwood, of which about 20 are fairly accessible by road, are, next to the general mountain scenery, a principal biological value. People drive great distances to see them. Attractive forestry demonstration areas containing Sierra redwoods at Whittaker and Mountain Home State Forests supplement the federal holdings.

Probably some of the most beautiful Sierra mountain scenery lies in the Mineral King area. This Element does not enter into the controversy over its future, other than to comment that regardless of the future use of the area, it truly warrants the most sensitive of treatments. In its present state, the road is tolerable to those seeking road-oriented sightseeing in a near-natural condition. The almost textbook-like succession of biological characteristics is exhibited as one climbs the access road.

Not to be overlooked is the federal Pixley National Wildlife Refuge. Though some regard it as wasteland, it preserves a very significant remnant of the Lower Sonoran Desert, an example of what little is left of the original great valley. It has its open space scenic qualities for spring wildflowers and winter hordes of ducks, geese, shorebirds and desert species. Expansion of the holdings of this area in the public interest is warranted. This area is treated in more detail in a later chapter.

Tulare County, as the greatest county for citrus, should capitalize on this "biological asset". People will travel great distances to smell the orange groves, enjoy the orderly, manicured orchards framed by low rolling foothills against a backdrop of California's tallest mountains! Though most any of the citrus areas would do, this Element chose an area between Porterville and Lemon Cove, which is worthy of special treatment as a sightseeing target. Here, growing, harvesting and processing can be observed. The County, in cooperation with the citrus growers and the Chamber of Commerce, should collaborate in developing a special treatment of this scenic area as a "showcase" for the citrus industry in California. The area chosen also lends itself to linking up at both ends to highly scenic water areas at Lakes Kaweah and Success. On the road approaching Lake Kaweah, as one rises above Lemon Cove, there is an excellent overview of the "citrus scenic area". A similar view is experienced in the region from the area between Lake Success through the flood plain bordered by citrus to the south. This changing but continuity of scenic qualities warrants a continuation of park trails, elimination of off-the-road motorcycles, and preservation of near-natural values from Success Reservoir down the Tule River flood plain through Bartlett Park to the eastern limits of Porterville. An existing publicly-owned railroad right-of-way along this route could become the thread of continuity to put this scenic package together. Such a program would also help in protecting rare and endangered species. The development of parks at either end of the citrus scenic area will provide the stopping places for those coming to leisurely view the orchards.

An important aspect of the whole tourist industry is the quality of the en route experience in order to reach the attractive natural or man-made scenic areas. There is a tendency to overlook this aspect in the planning and zoning process. This Biological Resources Element has used a two-step approach in recommending the best use of the scenic biological resources. First, selection of representative examples of the variety of scenery; second, determination of what access is needed to reach the areas. Lack of concern for the aesthetic values of the en route experience may nullify the value of the destination. Both should be planned together. A poor approach to a beautiful park may eliminate the desire of many people to reach it. Such detracting developments are no secret, and there is much pressure being generated throughout the state to prevent their further proliferation and to eliminate the most obnoxious appearing developments which exist. Such uses include: cluttered roadside services, junkyards, abandoned automobiles, cluttered signs and billboards, a maze of overhead power and telephone lines, eroded cuts and fills, and eroded gullies.

Tulare County has made little progress to date in the preservation of its scenic resources and has depended too much upon the efforts of federal land management agencies to carry the load. On the one hand, strong effort has been given to promoting tourism, while on the other hand, little effort has been given to protecting the very scenic resources of the County, and the approaches to them, which attract tourists by the many thousands each year. There is more than simple irony in the fact that two sections of the State Highway System within Tulare County were included in the State Master Plan of Scenic Highways by act of the Legislature in 1963, and yet the County has not yet acted to gain their official designation as State Scenic Highways. By contrast, many rural counties throughout the State have achieved such designation.

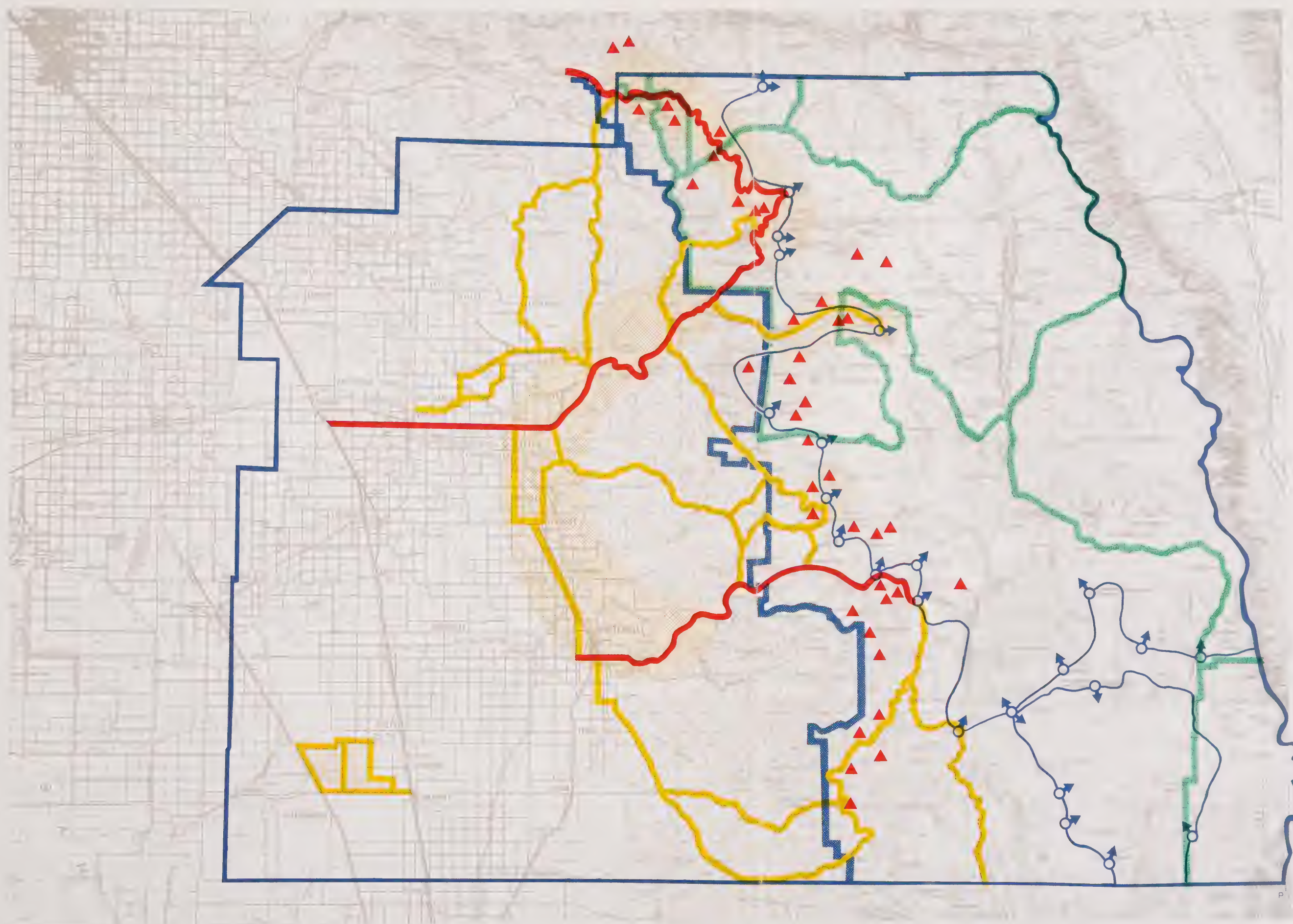
Despite loud hue and cry which has been generated by but a few people in the County against achieving official designation of Highway 198 east of Freeway 99, and Highway 190 east of Porterville, the negative effects of a program of scenic corridor protection which they claim will result have just not materialized in other counties of the State. The State Division of Highways has already completed scenic corridor studies for these two sections of highway, and it remains only for the County to adopt a relatively simple program to assure preservation of corridor scenery. Contrary to the opinions of those people who have fought the scenic highway program locally, a program of corridor protection will not in any way limit the right of landowners to use their land for purposes indicated by the County General Plan. Policies and procedures established by the State specifically make clear that the program does not seek to prevent development which is in conformance with General Plan policy.





*This map locates some of the principal scenic areas of the County; attractive because of their biological values. The map shows high priority scenic areas and access roads. The scenic areas are targets for people both from within and from without the County. People come to these areas for casual viewing of the broad scene, not scientific-ecological study of the plants and animals. They also come for related recreation such as hiking, fishing, camping, picnicking, photography, painting, relaxing and generally enjoying the surroundings without dissecting the reasons why it is so attractive. Others come for scientific and educational study.*

*In the map, sightseeing needs of the public were distinguished between road-oriented recreation and roadless recreation. Tulare County has perhaps more roadless oriented wilderness and spectacularly beautiful mountain scenery than any other county in California.*



# SCENIC BIOLOGICAL VALUES

## TULARE COUNTY

### LEGEND

- NATIONAL FOREST BOUNDARY
- COUNTY BOUNDARY
- FEDERAL PUBLIC LANDS BOUNDARY
- STATE SCENIC HIGHWAYS
- PROPOSED TULARE COUNTY SCENIC ROADS OR ADDITIONS TO STATE OR FEDERAL SCENIC HIGHWAYS
- BOUNDARY OF THE ROADLESS SCENIC AREAS
- ROAD HEAD
- SIERRA REDWOOD GROVE
- SCENIC TARGET AREA ROAD ORIENTED

Source: Grunwald, Crawford and Associates









The steps required by the County at this point are simple. The basic requirements are that on-site signs and developments allowed by the zoning ordinance be controlled to assure good site layout and appearance, and that outdoor advertising structures (billboards) be prohibited within the limits of the scenic corridor mapped by the State Division of Highways. The further irony of not meeting these requirements to date is that Tulare County has included corridor protection of these highway sections in its officially adopted General Plan since 1964, and that State law now requires that the zoning ordinance be brought into conformance with the Element. It should be noted that regulations of the County of Kern have prohibited billboards along rural sections of highways for many years in recognition of the contribution of the scenery viewed from these highways to the pleasure of local residents and tourists alike.

The Scenic Biological Values Map shows that in addition to reconsideration of the State Scenic Highways, the County should give special attention to inclusion of other roads into a Countywide system. Such a system could include, in addition to the State roads, scenic designation by the County and federal agencies. The important thing is that they be planned together with two purposes in mind:

1. Provide the highest quality en route experience to the scenic target areas.
2. Provide scenic loop drives which become travel objectives themselves.

An integrated scenic road system for the County should include a special approach to the use of the Pixley National Wildlife Refuge. More study, but prompt action on this system is indicated. As part of this, a firm approach to determining necessary scenic corridor controls should be exercised. In the long run, such controls will enhance the land values in the corridor and encourage the use by tourists which also adds to the tax base of the County.

## Recommendations

1. That the Tulare County Board of Supervisors agree in principle to the investigation of the feasibility of the establishment of an integrated system of scenic roads in the County; and that the County administration be directed to make such planning studies to include the recommended routes and scenic corridors and with appropriate zoning and controls. Further, that the Board appoint an advisory committee to include but not limited to, representatives of the following: U. S. Forest Service, U. S. National Park Service, U. S. Bureau of Sports Fisheries and Wildlife, State Department of Fish and Game, State Division of Forestry, the citrus

industry, the Secretary-Manager of the Tulare County Chamber of Commerce, and the Scenic Highway Coordinator of District 6 of the State Division of Highways. Following determination of the feasibility, the Board should take steps to carry out the resulting plan which will involve cooperation of all of the above organizations.

2. That the Tulare County Board of Supervisors direct the County administration jointly with the Tulare County Chamber of Commerce to develop a publicity program for public use of the scenic road system and the scenic target areas. Such an educational program should include emphasis on location of scenic and biological values, choice photographic spots, camping and picnicking, fire prevention anti-littering, traffic safety and courtesy, locations for information and services, and self-guiding tour materials for scenic geological and biological interests marked by numbered stops along the scenic system.
3. That in recognition of the tremendous demand for use of the roadless wilderness areas in the eastern half of the County, the Board of Supervisors should formally request of the Legislature and the Secretary of Business and Transportation, that no additional trans-Sierra Highway be constructed as an extension of State Highway 190. In keeping with this protective principle, a request should be made to the U. S. Forest Service that no additional developments be allowed in the road corridor that separates the Dome Land Wild Area and the roadless areas to the north.

Source: David Moore, Tulare County Planning Department



*Below the foothills in Tulare County East Valley area the orderly concentration of citrus groves provides an exceptional scenic area in California. A simple drive through this area provides a scenic experience for many visitors.*

Source: Gregory Dowds, Tulare County Planning Department



*Natural scenic corridors exist along many of the County and State roads in the foothill and mountain regions of the County. Designation of some of these routes as scenic highways is considered in this element. Primary restraints include the restriction of billboards or the generation of junk yards along such corridors. Other new uses of land are essentially unrestrained by the designation. However the nature of the area itself, economically and physically, may generally preclude the development of intensive residential uses and commercial enterprise. Such uses are not, however, restrained by regulation in a designated scenic route.*

# Chapter VI

## BIOLOGICAL RESOURCES FOR SCIENTIFIC AND EDUCATIONAL PURPOSES







## CHAPTER VI

### BIOLOGICAL RESOURCES FOR SCIENTIFIC AND EDUCATIONAL PURPOSES

Biological resources are used for a wide variety of purposes, and by a surprising number of the population. Indeed, to compare with recreation activities, probably many more study plants, animals and their habitats, than participate in hunting or hiking, or horse-back riding or winter sports.

The following are the major uses of biological resources for scientific and educational purposes.

For research, the principal need is for natural or near-natural areas required by scientists from such institutions as museums, academies, governmental agricultural and public health agencies, universities and colleges, professional collectors, foundations, and foreign countries. Preferred are areas large enough to have as nearly as possible ecological balances or near-natural successions of conditions. The objective to meet this need is the protection of areas representing all of the landscape types.

According to the 1972-1973 Tulare County Directory of Schools, the Countywide total average daily school attendance is 56,796. This is approximately 25% of the population of the County. The attendance figure includes elementary grades through community college level, and special summer sessions and adult instruction. For class instruction, there are demands for field trips, many of which require near-natural areas. In addition, students benefit from materials and study information brought in by teachers and other students. Because the youth of today are our wildland managers and users tomorrow, it is most important that adequate areas be set aside for the educational study of biological resources.

It was felt that to obtain a recommendation on this subject, a group of educators should make their wishes known. A contact was made in the Sacramento office of the State Department of Education. They recommended, with praise, Charles Rich, Director of Science and Conservation, Tulare County Department of Education. Mr. Rich, also the Director of SCICON (Clemmie Gill School of Science and Conservation), and his Assistant Director, Noel Fitzgerald, were asked to gather together a committee representing all levels of education and recommend field study areas essential to instruction in the schools of the County. A list of the members of this Committee appears in Chapter I.

The committee prepared a map with a brief description and use of each area. These areas are either being used now or would be desirable for educational use in the future. Added to this map were a few areas recommended by Dr. George Laurence of Bakersfield College. Dr. Laurence has been asked by the California Natural Areas Coordinating Council to identify areas for preservation in Tulare and Kern Counties. Hopefully, this project will get started.

The following is a list of areas recommended by the Committee and shown on the map for scientific and educational purposes:

\*The riparian lands of the County are of great value for educational and other purposes. It is imperative that the waterways, as well as their banks and surrounding vegetation and habitats, be preserved. Protection through flood plain programs will preserve stream bank wildlife habitats, and will help in the reduction of air and water pollution, as well as add beauty. Development practices that upset natural habitat in wetlands and watersheds should be controlled so as to minimize erosion and maximize beneficial vegetative growth.

1. "Hogwallows" - the bumpy area of land, sometimes referred to as "vernal pools" or "ground squirrel mounds", near Dinuba may be one of the few virgin lands left in the County. For study by elementary, secondary, and junior college, several acres are needed.
2. Virgin land around Monson-Sultana. Should be kept for study of soil, grasses, etc., by secondary and junior college.
3. Oak and swampy area east of Visalia along Highway 198. All educators contacted felt this area should be preserved, possibly made into a State Park, could be a home for the disappearing Tule Elk. All levels.
4. Red Mountain area behind Vanderhoof Ranch, Woodlake. Thirty - forty acres should be preserved to study the flora and fauna of the high meadows; secondary and junior college level.
- \*5. Dry Creek Gravel pits one mile north of Lemon Cove. The whole drainage area is an excellent riparian area of study for all levels (especially schools in the Exeter, Woodlake, Lemon Cove area). Excellent wildlife varieties and numbers; also contains an Indian Graveyard.
6. Wuchumna Hill, Lemon Cove. Excellent wildlife area for study of reptiles, birds, and wildflowers especially, for use of all three levels (especially schools in the Exeter, Lemon Cove area).
7. Mrs. Montgomery's Hill, Lemon Cove. Excellent hilltop reserve for wildlife and wildflower studies at all levels.
8. "Hogwallows", LindCove. Said to be best in the area. Interesting study area for all three levels (see No. 1), schools in central area of County.
9. Tule Pond Study Area. Entire pond area should be preserved for study of this riparian habitat. All three levels.
10. Rocky Hill, Exeter. Should be preserved for all levels of study of plant ecology, geology, herpetology, mammalogy, cultural anthropology. The caves, Indian paintings and graveyard need special protection. All educators concurred in this as it serves the whole County.
11. Old Huck Finn Pond, Round Valley east of Lindsay (Vollmer sand and gravel pits, owned by Lindsay-Strathmore Irrigation District). Excellent riparian study area for all levels, especially those schools in the central and northern parts of the County. Ten acres, approximately.
12. "Hogwallows". Lewis Creek area with alkali soil. For all three levels (see No. 1 and No. 8), especially those in the Tulare-Lindsay area.
- \*13. Valley Riparian Habitat, including a few acres above and below Bartlett Park adjoining the river, to be left as-is for study. All levels, especially the junior college, especially in the Porterville area. (Drainage area of Lake Success.)














*This map shows biological resources which are valuable for educational study areas. Natural or near-natural areas are required by scientists from institutions such as museums, academies, government, agricultural and public health agencies, universities and colleges, professional collectors, foundations, and foreign countries. Preferred areas are large enough to have, as nearly as possible, an ecological balance for near natural succession of conditions. Protection of areas representing each of the various landscape types as well as unique situations is considered in this element. Field trips for class instruction by local schools are expected to concentrate in areas shown on this map. Where private property is used for such purposes, the permission of the owner will be sought by the educational institution prior to the study.*



# EDUCATIONAL STUDY AREAS FOR BIOLOGICAL VALUES

## TULARE COUNTY

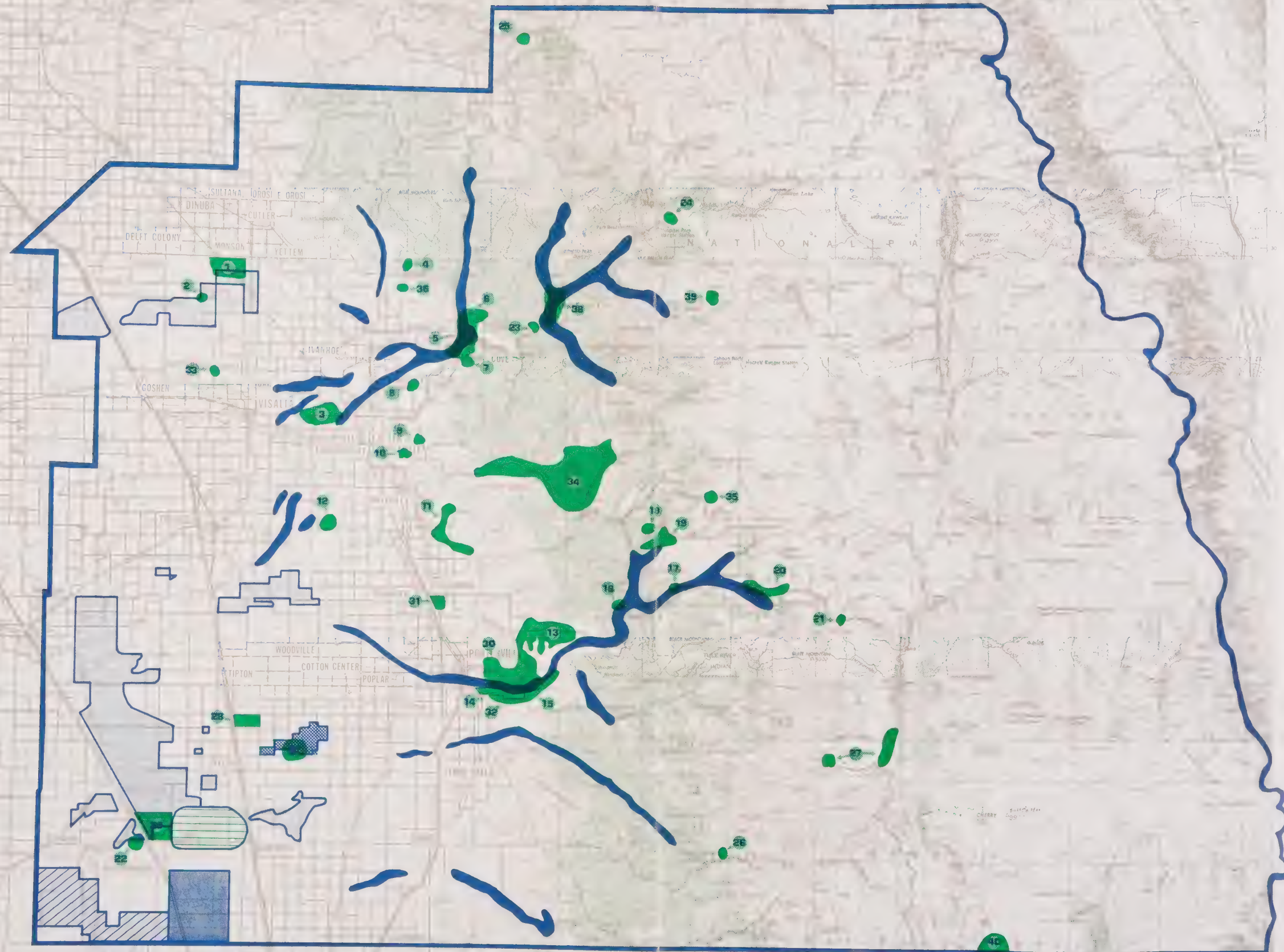
### LEGEND

-  AREAS REFERRED TO BY NUMBERS  
IN TEXT (RECOMMENDED FOR  
PRESERVATION FOR SCIENTIFIC  
& EDUCATIONAL PURPOSES)
-  WOODLAND AREAS
-  RIPARIAN (AREAS ADJOINING  
WATERWAYS)
-  EXAMPLES OF REMAINING DESERT
-  TYPE 1
-  TYPE 2
-  TYPE 3
-  TYPE 4
-  TYPE 5

Sources: Grunwald and Associates and the  
Tulare County Department of Education.



0 1 2 3 4 5 6 MILES  
SCALE  
PREPARED BY TULARE COUNTY PLANNING DEPARTMENT







- \*14. Gravel Pits, Tule River, below Success Dam. Excellent riparian study area, for all levels in the Porterville area.
- \*15. Herron Rookery, south of Highway 190 near Porterville State Hospital. One to two acres, at least ought to be preserved as a habitat for the Great Blue Heron which nests there. All levels.
16. Cattle Enclosure, west of Coffee Camp, north of Highway 190. Small area, perhaps 10,000 square feet, for study of plants. Junior college level.
17. Succession at Coffee Camp north of Highway 190. Burn of 1960, approximately 100 acres. Should be preserved for plant succession studies; junior college level.
18. Deer Enclosure, off Bear Creek Road above Springville on the Greer property. One acre. For use of plant study at the junior college level.
19. SCICON - The Clemmie Gill School of Science and Conservation owned and operated by the Tulare County Department of Education for the students of Tulare County. All levels. Environmental Education field study site, residence school. Seventy acres plus, or as much as possible of the entire Bear Creek watershed. Habitat manipulation area. Revegetation area on the hill southeast of SCICON (above Springville, on the Bear Creek Road). To be used by secondary and junior college for plant study.
20. Deer Winter area below Camp Nelson. Ten to 20 acres in Mahogany Flat area. For wildlife study; junior college level.
21. Quaking Aspen Meadow, currently used by pack station. For study of plant succession; junior college level; 20 acres.
22. Alkali desert 10-20 acres in the Earlimart-Alpaugh area. Home of the Blunt-Nosed Leopard Lizard. For all levels, especially secondary; desert flora and fauna.
23. Slick Rock, north side of Kaweah River. Riparian wildlife area and Indian historic site. Secondary level.
24. Hospital Rock Area, Sequoia National Park. From Kaweah River west, straight up. Secondary level biology field site, especially Woodlake area.
25. Whitaker's Forest, Sequoia National Forest. Forest studies, college level.
26. California Hot Springs. Several acres in area need to be preserved for study by all levels.
27. Kern River area 10 miles above Johnsondale. Several areas need to be preserved as future study sites for all levels.
28. Lapadula Lake Park, east of Highway 99, south of Tipton. Wildlife habitat. All levels.
29. Pixley Wildlife Refuge, east of Highway 43. All levels.
30. Slough behind Doyle School northeast of Porterville. Five acres for elementary level riparian habitat.
31. Ecology Pond, adjacent to Strathmore High School.
32. Ecology Pond, adjacent to Porterville College.
33. Brazil Ranch (Correa and Brazil), west of Goshen, end of Road 328. All levels. Eagle population and four varieties of large hawks. Historic value, old stage stop, old riverboat stop.
34. Blue Ridge and Yokohl Valley. One of few remaining eagle and California Condor habitats. All levels.
35. Houghton Cave, Mountain Home State Forest. Geology and cave ecology. Secondary and college levels.
36. Twin Buttes, five miles north-northeast of Ivanhoe, four miles west-southwest of Elderwood, five miles northwest of Woodlake. Erosional remnant of geologic significance. Secondary and junior college levels.
37. Nature Conservancy Area. Preserves example of Lower Sonoran Desert.
38. Three Rivers Riparian Area. Needed for study of middle altitude riparian species.
39. Paradise Peak. Needed for special study of Sierra Redwoods.
40. Pine Flat Area. Needed for study of a special plant, Nemacladus Twisselmanii.

In addition, five acres around each school is needed to be preserved as outdoor classrooms, especially ravine areas, ponds, or other interesting habitats.

A little known additional source of areas for scientific and educational purposes is contained in "A Directory of Research Natural Areas on Federal Lands of the United States", compiled by the Federal Committee on Research Natural Areas, 1968. Some units are being added since its publication. Six are located in Tulare County, and all are in the National Parks. The National Park Service prefers not to have the exact location of each mapped, but anyone wanting to perform research on them will be assisted in their work. The units in the list are as follows:

1. Castle Rocks Natural Area - 14,750 acres; primarily in the coniferous belt, Ponderosa, Sugar Pine and Red Fir.
2. Granite Creek Natural Area - 4,500 acres; highest level of coniferous vegetative type, alpine meadows, White-bark Pine.
3. Kaweah Basin Natural Area - 13,500 acres; upper conifer belt, alpine meadows, Whitebark Pine.
4. Heather Lake Natural Area - 40 acres; upper coniferous forest, White Pine.
5. Whitney Creek Natural Area - 75 acres; upper coniferous forest, Limber pine.
6. Garfield Natural Area - 9,600 acres; middle coniferous forest, Ponderosa, Sugar Pine.

#### Analysis of Deficiencies

For this Element an inadequate amount of time was available to do the field work necessary to recommend a detailed system that would preserve examples of all of the types of vegetation and ecological units from the valley to the highest mountain. Some preliminary observations are in order, however.

Because the County is approximately half owned by the federal government, and because they have given preserve status to certain areas, only a few probably deficiencies can be noted. The six natural areas of the National Parks appear to preserve examples from above timberline, down through the lower coniferous belt. A possible deficiency might be a natural area designation for key chaparral and woodland areas contained in the National Parks and Forests. Of most critical responsibility for the County might be the preservation of grassland in the foothills easterly of a line from Woodlake to Porterville. Collaboration in this effort is advisable with the Army Corps of Engineers in the vicinity of Lakes Kaweah and Success.

Grassland areas in the vicinity of and westerly of Highway 99 are considerably different than the foothill grassland. These are perhaps in the most critical need for preservation of any land in the County. Nature Conservancy is studying these remnants of the Great Valley, and they recognize five types. These areas are shown on the Educational Study Areas map and were copied from a ten-year old map drawn by the staff at the Kern National Wildlife Refuge. It, therefore, is out of date, with some of the remaining desert lands shown probably now under cultivation. Because of the critical loss of natural areas in this region, it is important that the Pixley Refuge be expanded minimally to include Type 3 desert, as shown on a tentative expansion plan (Figure VI-1). Also, a piece of land owned by the Forest Service should be transferred and included, perhaps with connecting lands to the Refuge. Further study is needed to consider preserving more of the small amount of remaining desert.

The types of desert in Tulare County defined by the Nature Conservancy are as follows:

Type 1: Area represented by two Atriplex species of plants and Allenrolfea. Sandy loam with penetrating alkaline playas.

Type 2: Heavily alkaline with very few shrubs but an abundance of Crockeria and an uncommon alkaline grass, Paccinellia.

Type 3: Valley grassland association with sandy Hesperia Loam and Cajon soils fingering through alkaline playas.

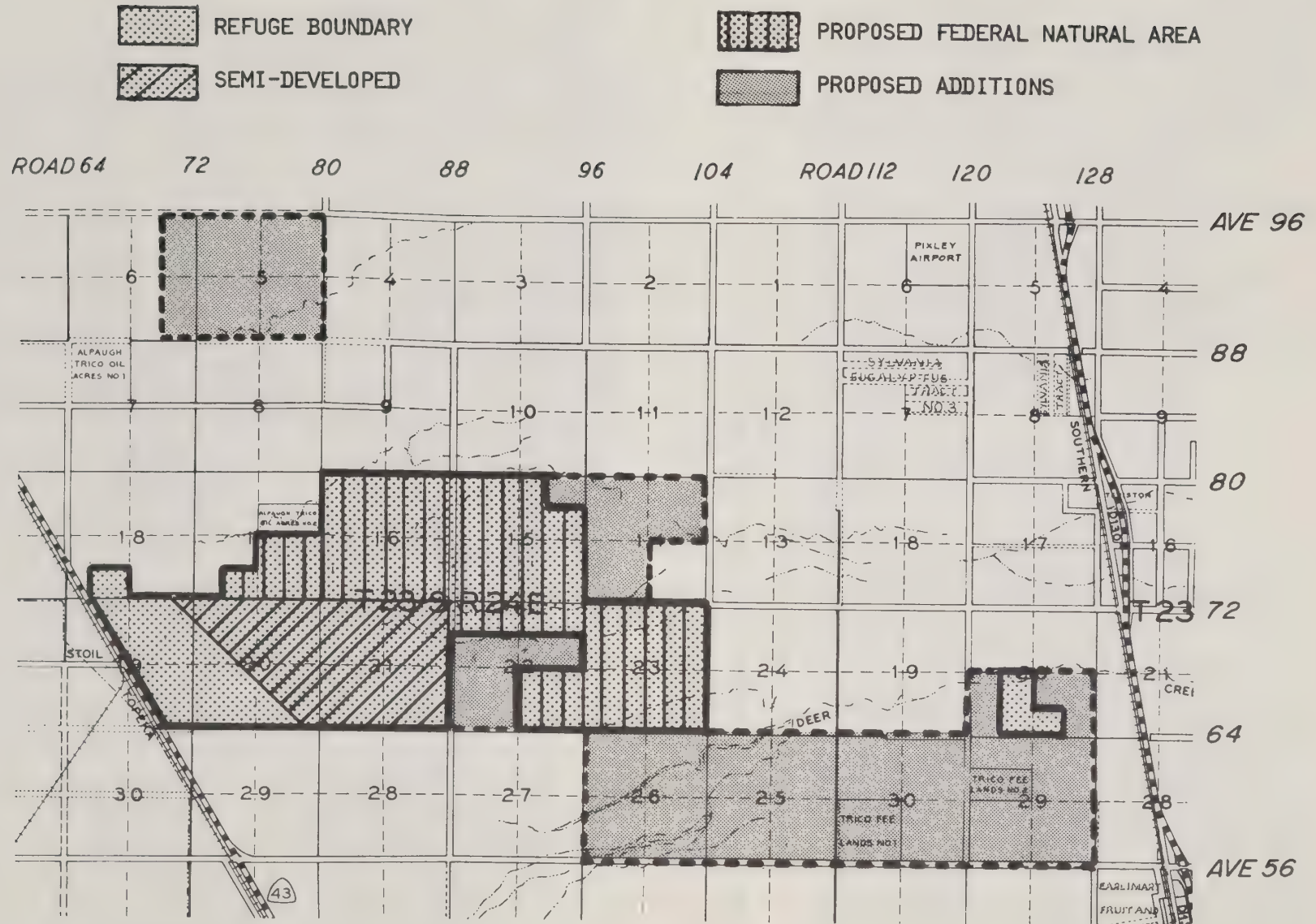
Type 4: Similar grassland as Type 3, but with heavier soils (sandy loam extending east gives way to clay and alkali). Extensive vernal pools (typical of Pixley Refuge).

Type 5: Heavy loams with hardpan, undulating terrain provides wet pools in winter with Spade-foot Toads and Fairy Shrimps (typical of Nature Conservancy area).



(Figure VI-1).

# Pixley Wildlife Refuge



## Recommendations

1. The Tulare County Board of Supervisors should establish a policy which supports the designation and setting aside, in a restricted preserve status, examples of the wide variety of landscape in the County, for scientific and educational purposes. As part of the County's interest in having protection of examples of all landscape forms, a formal request should be made to the U. S. Bureau of Sports Fisheries and Wildlife to have a major portion of the Pixley National Wildlife Refuge added to the official federal list of Research Natural Areas.
2. That by appointment, it continue an advisory committee of educators and scientists and representatives of fed-

eral and state agencies to review this Element, and assist the Planning Department in producing a more precise plan on which an action program can be based to accomplish two things:

- a. Recommend what areas are the responsibility of the County to acquire or protect;
  - b. Recommend what areas are the responsibility of other agencies.
3. In the interim, the County should carefully examine the zoning of all areas recommended in this Element as preserves, and reject any developments adverse to the protection of such areas until it is determined whether or not they should be protected.

Source: California Department of Fish and Game



*A typical natural area in the Southwestern portion of Tulare County which is recommended to be preserved and protected. Such areas have value for sightseeing and casual study of biological resources. School groups and others can capitalize on these biological aspects by avoiding their destruction prematurely. This type of habitat is valuable for the preservation of a number of wildlife species in Tulare County. Such land is found in the Pixley National Wildlife Refuge. Although some people regard this area as a waste land, it does preserve a significant remnant of the Lower Sonoran Desert and is an example of the small part of this kind of natural area left from the original Great Valley. It has open space scenic qualities such as spring wild flowers and winter hordes of ducks, geese, shore birds and desert species. Expansion of Federal and State holdings in this area in the public interest is warranted.*





Two-year old Rio Grande Turkeys are grazing on rye grass in the Three Rivers Soil Conservation area. The purposeful introduction of wild turkeys into conservation districts has proven successful. This managed wildlife will provide a valuable recreation resource as well as a natural food supply not formerly found in that habitat. Interesting new ecological relationships between these birds and the predatory animals should develop.

Source: USDA Conservation Service



Artificial enhancement of habitat is a specific conservation measure discussed in this element. Here a watering trough is concealed by a brush pile. Some of the brush was removed to show the watering hole. This enhanced habitat device is located two miles south of Lemon Cove and is a critically important factor in wildlife habitat improvement.





*American Peregrine Falcon.* A medium sized blue-gray hawk with long pointed wings, a black cap, and black cheek patches. Endangered in 1970 this population had declined to 10 birds, of which 2 pairs produced 4 young. In captivity, incubation may increase the natural population.

Source: Kenneth Fink, San Diego Museum of Natural History

# Chapter VII

## BIOLOGICAL RESOURCES FOR AGRICULTURE







## CHAPTER VII

### BIOLOGICAL RESOURCES FOR AGRICULTURE

The purpose of treating agriculture in any study of biological resources is mainly to protect the interest of agriculture if a change in the use of agricultural lands is contemplated. Also in the strictest sense, all agriculture is biological, for it involves the production of plants and animals for food and fiber. In the request for the Biological Resources Element, the County expressed greatest concern for identification of natural biological values. Therefore, agriculture will be treated in less detail than some other subjects.

The local office of the U. S. Soil Conservation Service contributed basic agricultural information for this report. The local office conferred with and obtained the concurrence of the Tulare County Association of Resource Conservation Districts and its five member districts. Also, the County Agricultural Commissioner's office is in agreement with the recommendations.

A colored map covering lands westerly of the Federal Land Ownership Line was provided for this Element. It shows the soils for this western "half" of Tulare County, designates capability classes and, accompanied by California Form 186A, gives symbols which denote soil groups and associations. For purposes of this report, only the land capability classification is essential in determining conflicts with agricultural uses. (See Land Capability map.)

It is the recommendation of the local SCS office that generally two sets of priorities be established for use of the soils for agriculture: Series A, for soils suited for cultivation, and Series B soils not suited for cultivation. For each of these, the land capability classification was made as follows: (See Figure VII-1.)

Series A. Priorities - Primarily for cultivated products of food and fiber.

- Priority 1 - Soil Classes I and II
- Priority 2 - Soil Class III
- Priority 3 - Soil Class IV

Series B Priorities - Primarily for livestock industry.

- Priority 1 - Soil Class IV
- Priority 2 - Soil Class VI
- Priority 3 - Soil Class VII

The SCS office did not commit itself on the need to keep all of the seven classes of land only in agriculture. It was recommended that all Class I, II, and III lands be reserved for agriculture as their highest and best public use. Insofar as possible, uses other than agriculture should be restricted to Classes IV, VI, and VIII.

The data presented indicates some conflict where educators and other groups propose natural preserves on some of the better classes of soils. In carrying out the proposals for preservation of natural areas, the conflict with agriculture must be examined closely and be reflected in the final plan for such areas before action on a system of preserves is taken.

#### Recommendations

1. That any proposal for land use (other than agriculture) on Classes I, II, and III soils be scrutinized for alternative sites, subject to limitations posed by the General Plans of the cities in the County.
2. That, when feasible, flood plain lands that meander through prime agricultural lands be left in as natural a state as possible for open space, endangered species, and nature study.
3. That agricultural representation be appointed to any advisory group to the planning of protection of biological resources.

A converse side of the importance of agricultural crop lands as a biological resource is that vast areas of existing and potential wildlife habitat exist on private lands in agricultural areas. The "clean" character of agricultural operations and concern for water loss has resulted in the gradual elimination of natural vegetation along sloughs, creeks, ditches and hedgerows, and in the reclamation of lands which formerly had habitat value. The widespread and occasionally indiscriminate aerial application of pesticides and herbicides has been inimical to many species of small game and birds, as has been the filling of sloughs, the elimination of wild cover, and the leveling and reclamation of lands where the soil was once considered economically unproductive.

Often, important habitat areas are reduced or eliminated without sufficient knowledge of the biological values involved. The irreversible loss of important types of natural desert lands of the Great Valley described in Chapter VI serves as an example. The problem, however, extends well beyond the concern for land and water areas which have singular importance. Of equal concern is the more common vegetative habitat for animals which contribute greatly to the overall enjoyment of the rural environment. While the loss of small habitat areas may be insignificant on a given ranch, the cumulative loss of such areas Countywide has had a significant adverse effect upon the environment.

It is recommended that:

The irony of this situation is that most agricultural operators historically have shown a consistent concern with the preservation and even provision of habitat for their own direct enjoyment as well as for the indirect enjoyment of the general population. Both urban and rural residents count heavily on abundant quantities of dove, quail, pheasants and other game birds during the hunting season.

Agricultural lands also provide habitat for dozens of species of non-game animals and birds which are common to the County, and many types of vegetation, especially native wildflowers, add to the beauty of the County. These values are being reduced at an alarming rate because of pressures for the reclamation of land and the demands of profitable agricultural production. But perhaps the principal cause has been the lack of any consistent public or private program to preserve and enhance biological values on the farm in a manner which is compatible with farm management objectives. Even though agricultural practices insist on crop and animal production first, there are many ways in which biological resources can be enhanced without interference with these practices. In many cases, the effort can pay dividends in the form of commercial recreation receipts to the landowner.

1. The County assume the initiative in convening a series of seminars which would bring together representatives of the State Department of Fish and Game, the Soil Conservation Service, the Farm Bureau, Grange, Resource Conservation and Water Districts, the Audubon Society, Native Plant Society, and other interested agencies and groups, and the public generally, to identify and recommend ways to preserve and enhance biological resources within the agricultural community of the County. An excellent example of the potential are the thousands of acres of land which annually are kept out of agricultural production through federal programs of land and crop subsidy.
2. In connection with No. 1, above, the County should develop programs for the management of County and other non-federally owned public lands having potential for wildlife habitat, including lands developed or held for public park and recreation use. Public park lands on the Valley floor, both within and without the urban areas, should be managed also as sanctuaries and arboreta for plant and animal life to assist in carrying out the recommendations for the preservation of areas having values for study provided in Chapter VI.



*Conservation practices are available to local farm people to assist in the conservation of wildlife and certain plant species along the borders of areas used for intensive agriculture. Certain corridors, corners, and edges of intensively farmed areas can be treated, or left alone, in such a way that the conservation of wildlife and plant species can be had along with the profits of intensive agriculture. In most cases these conservation methods are of extremely low cost to the property owner. The attitudes and actions of private property owners are principally effective in such cases.*

# **LAND CAPABILITY CLASSIFICATION**



## THE LAND CAPABILITY CLASSIFICATION

The capability classification is a practical grouping of soils. Soils and climate are considered together as they influence use, management, and production on the farm or ranch.

The classification contains two general divisions: (1) Land suited for cultivation and other uses, and (2) land limited in use and generally not suited for cultivation. Each of these broad divisions has four classes which are shown on the map by a standard color and number. The hazards and limitations in use increase as the class number increases. Class I has few hazards or limitations, or none, whereas Class VIII has a great many.

### LAND SUITED FOR CULTIVATION AND OTHER USES

CLASS I	Soils in Class I have few or no limitations or hazards. They may be used safely for cultivated crops, pasture, range, woodland, or wildlife.
CLASS II	Soils in Class II have few limitations or hazards. Simple conservation practices are needed when cultivated. They are suited to cultivated crops, pasture, range, woodland, or wildlife.
CLASS III	Soils in Class III have more limitations and hazards than those in Class II. They require more difficult or complex conservation practices when cultivated. They are suited to cultivated crops, pasture, range, woodland, or wildlife.
CLASS IV	Soils in Class IV have greater limitations and hazards than Class III. Still more difficult or complex measures are needed when cultivated. They are suited to cultivated crops, pasture, range, woodland, or wildlife.

### LAND LIMITED IN USE -- GENERALLY NOT SUITED FOR CULTIVATION

CLASS V	Soils in Class V have little or no erosion hazard but have other limitations that prevent normal tillage for cultivated crops. They are suited to pasture, range, woodland, or wildlife. (Do not occur in California.)
CLASS VI	Soils in Class VI have severe limitations or hazards that make them generally unsuited for cultivation. They are suited largely to pasture, range, woodland, or wildlife.
CLASS VII	Soils in Class VII have very severe limitations or hazards that make them generally unsuited for cultivation. They are suited to grazing, woodland, or wildlife.
CLASS VIII	Soils and land forms in Class VIII have limitations and hazards that prevent their use for cultivated crops, pasture, range, or woodland. They may be used for recreation, wildlife, or water supply.

Capability classes are divided into subclasses. These show the principal kinds of conservation problems involved. The subclasses are: "e" for erosion, "w" for wetness, "s" for soil, and "c" for climate.

Capability classes and subclasses, in turn, may be divided into capability units. A capability unit contains soils that are nearly alike in plant growth and in management needs.

The units are: "1" erosion hazard; "2" wetness problems; "3" slowly permeable subsoil; "4" coarse texture, low water-holding capacity; "5" fine textures, tillage problems; "6" salinity or alkali; "7" cobbly, rocky, or stony; "8" root zone limitation, bedrock, or hardpan; "9" low fertility, acidity, or toxic properties; and "0" very coarse textured substratum.

Class *III* S8

EXAMPLE

Subclass

Unit



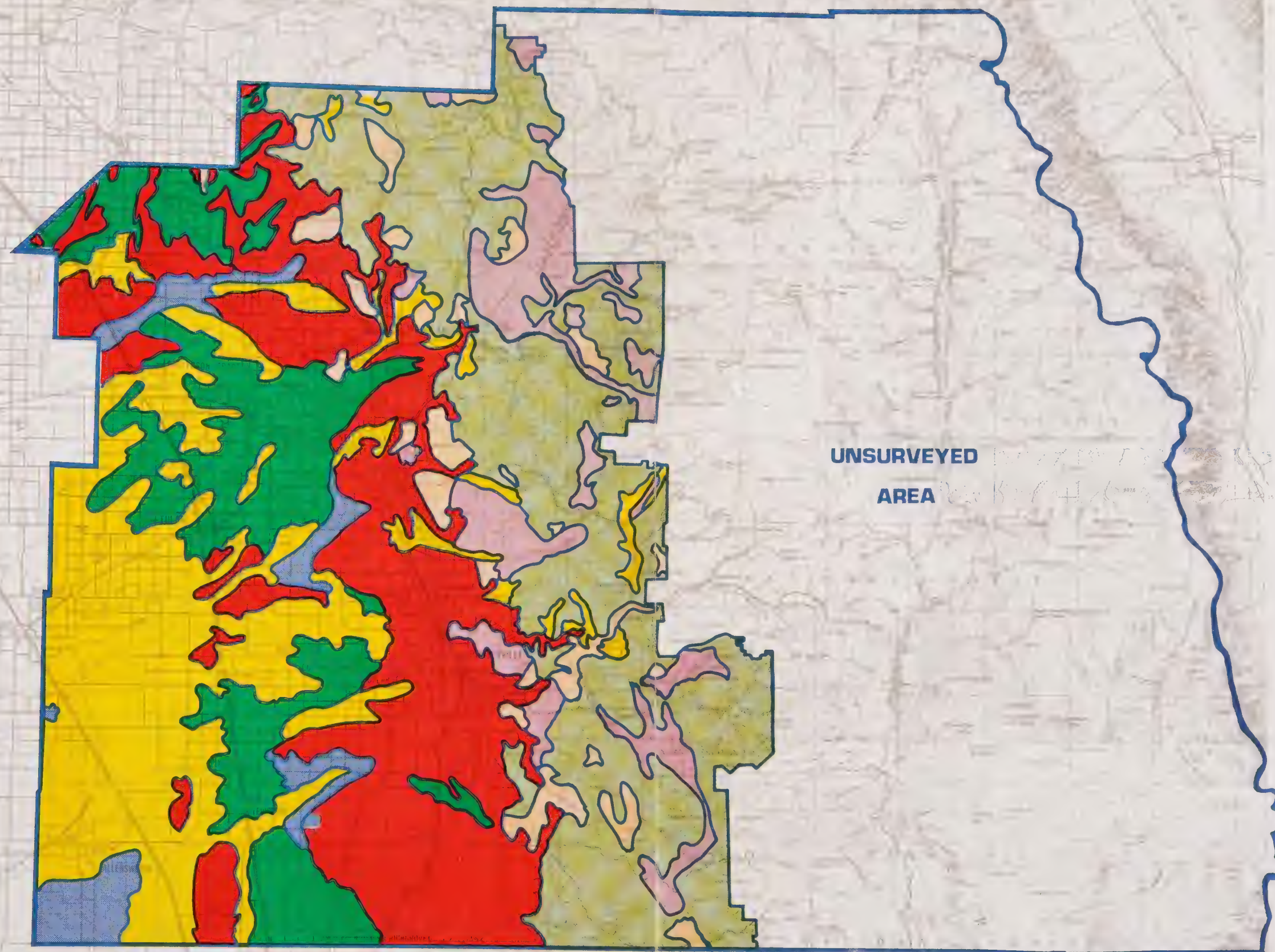
## LAND CAPABILITY MAP

The land capability groupings on the map are intended to show the suitability of soils for most types of cultivated crops and pasture without soil deterioration over a long period of time. In general, Class I, II and III comprise the most important agricultural soils in the County. These are located primarily in the central valley where a long growing season together with the availability of irrigation water makes this area one of the most important crop producing regions of the nation. The Class I designation signifies that the land is suitable for sustained high yields of most climatically adapted crops with minimum costs of development and management. Class I is thus considered the best agricultural land. Class II and III lands are also characterized by high yields but are more restricted due to conditions such as existence of hardpan layers, fine textured soils, or low water holding capacity.

Class IV soils are also considered arable, but contain severe limitations in one or more land characteristics, such as high concentrations of salts and alkali. These adverse soil conditions limit the use of Class IV areas to pasture and grain production.

Class I-IV soils comprise the great majority of the valley area of the County. Only isolated topographic features such as Venice Hills, which extend into the valley, are considered inappropriate for cultivation. In general, the foothill and mountainous portions of the County contain lands which are suitable for pasture, range and timber production. These areas are illustrated by Class VI, VII, and VIII areas on the map. Class VI and VII areas are considered suitable for grazing or forestry while Class VIII lands are best used for wildlife, recreation, protection of water supplies or aesthetic purposes.









## LAND CAPABILITY MAP





### TULARE COUNTY

#### LEGEND

##### LAND SUITABLE FOR CULTIVATION

-  CLASS I - VERY GOOD LAND
-  CLASS II - GOOD LAND
-  CLASS III - MODERATELY GOOD LAND
-  CLASS IV - FAIRLY GOOD LAND

##### LAND SUITABLE FOR PASTURE, RANGE, AND TIMBER; NOT SUITABLE FOR CULTIVATION

-  CLASS V - NOT USED IN TULARE COUNTY
-  CLASS VI - WITH MINOR LIMITATIONS
-  CLASS VII - WITH MAJOR LIMITATIONS
-  CLASS VIII - SUITABLE FOR WILDLIFE,  
WATERSHED, AND RECREATION

Source: Report and General Soil Map Tulare County,  
Soil Conservation Service, USDA







# Chapter VIII

## BIOLOGICAL RESOURCES FOR TIMBER PRODUCTION







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Nearly all the marketable timber in the County lies on lands managed by the federal agencies. Of this, only the timber in the National Forests is harvested in a regular program. The following list is arranged in descending order of dollars received from the harvest of timber in the Sequoia National Forest:

Ponderosa and Jeffrey Pine  
White Fir and Red Fir  
Sugar Pine  
Incense Cedar

In altitudes below the conifer belt lies an extensive band of foothill Digger Pine, Blue Oak and other Upper Sonoran associated species. These have limited use for other than firewood purposes. Within the Sequoia National Forest are a considerable number of private landholdings, most of which contain little marketable timber and are chiefly meadow lands.

A number of programs are in progress by the U. S. Forest Service for improvement of the long-range management of the Forest. For some time the government has been developing a Land Ownership Adjustment Plan. This Element seeks to round out the peripheral boundaries of the Forest and negotiate exchanges to acquire the inholdings. This is a worthy program for any land management unit of this size and should be completed as soon as possible. Participation in this program by the County is indicated. The U. S. Forest Service desires to "pull away" from some of the highly developed areas such as Camp Nelson.

A Forest Service management program is being aimed at reduction of fuel through a prescribed burning program. Side benefits to this are an increase in the protein content of the forage shrubs for deer. The Service contends that originally fires were a natural aspect of the forest, and therefore fire should continue to be a useful tool of management.

A number of agencies and individuals have pointed to a number of forest management problems that exist in a few places in the County, including the Tule Indian Reservation. During the past five years, the general public has become extremely sensitive to proper land management practices. Many of the present conditions of lands, public and private, have resulted from practices approved some time ago. It, perhaps, is timely to have a review of most management practices to determine if they meet today's higher standards in the light of the relatively new awareness of limitations of our resources. Such review is well worth the effort since it would verify the good practices as well as point to changes that are needed.

#### Recommendations

1. That the County, as part of its concern for all the biological resources in the County, convene the appropriate land management agencies and conduct a brief examination of the present practices which might cause erosion, pollution of waters, deterioration of plant cover and wildlife, and other environmental deficiencies.
2. That the County initiate with the U. S. Forest Service and National Park Service a meeting, with appropriate follow-up, to work with these agencies to assist them in completing their ultimate boundaries, to their satisfaction and to the County's. An immediate examination should be made of the U. S. Forest Service's Land Ownership Adjustment Plan and, if in order, should be endorsed, perhaps after hearings, by the Board of Supervisors.
3. That the County adopt an ordinance or take appropriate action requiring that all slash resulting from new construction, including subdivisions, be disposed of immediately, and in any case not be allowed to create fire hazards and unsightliness beyond the year the slash was created. A specific, if necessary - bonded, requirement should be included with Conditional Use Permit or Building Permit procedures.
4. That in order to control use of the roadless back country, no more public road heads for trails be created, and that no improvements be made in the road corridor between the Dome Lands Wild Area and roadless areas to the north.

5. That in principle, the County recommend to the appropriate state and federal agencies that steps be taken to place in public ownership six or more of the present private groves of Sierra Redwoods. Over the long haul, this can be the best guarantee of preservation of these biological assets.
6. That the County recommend jointly to the U. S. Forest Service, National Park Service and the State Division of Forestry, that one or more of the groves of Sierra Redwood be the subject of a well-rounded ecological study to include, but not be limited to, climatic, edaphic, and reproductive requirements.
7. That the County, in the interests of having preserved examples of little remaining desert, meet with the U. S. Forest Service and the U. S. Bureau of Sports Fisheries and Wildlife, to determine the feasibility of transfer of an 800-acre parcel of land from the Forest Service of the Bureau at the Pixley National Wildlife Refuge.
8. That the County inform the U. S. Forest Service of the findings of this Biological Resources Element with respect to rare and endangered plants occurring on the National Forest lands, and urge that, if necessary, designation of special botanical areas be enacted and protection of these plants be incorporated into the management plans.
9. That the County discuss with the Park and Forest Services the possibility of use of County prison labor to assist in the care of the forests.

Source: USDA



*A number of programs are in progress by the United States Forest Service for the improvement of long-range management of the forest. Among other studies, cone and seed census' are carried out by the service as a part of their planning and development of improved forestry resources.*



# Chapter IX

## BIOLOGICAL RESOURCES FOR HUNTING AND FISHING





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### BIOLOGICAL RESOURCES FOR HUNTING AND FISHING

The principal responsibility for enhancement and protection of the wildlife in the County rests with the State Department of Fish and Game. Many personnel of that Department were extremely helpful. The Department feels that it is getting excellent cooperation from the County.

Though the demand for hunting in the County is decreasing, the demand for fishing is steadily increasing. When viewed from the standpoint of hunter-days, the demand in descending order is as follows: deer, dove, pheasant, quail, and in about the same amount are lumped ducks, bear, rabbit and squirrel.

Warm water fishing is much in demand, particularly at lower levels, and trout demand continues to grow in the higher altitudes. All available opportunities that now exist for fishing should be continued. Present stocking practices by the State appear to be nearly adequate as possible to maximize the opportunity for fishing.

Much of the winter deer range suitable for hunting is on federal land. In the lower reaches, however, private lands supply large quantities for hunting. The County can continue to reinforce these open space values for deer hunting by exercising careful control over the type and location of recreation subdivisions permitted on private lands.

#### Recommendations

1. That the County periodically (biennially) convene local officials of the State Department of Fish and Game, the federal land management agencies, sportsmen and conservation organizations to explore the status of fish and game in relation to other types of wildlife requiring nonextractive protection, and in relation to agricultural land management practices as described in Chapter VII.
2. Maintain programs on dog-pack controls to eliminate this significant factor so destructive to wildlife, especially deer.



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